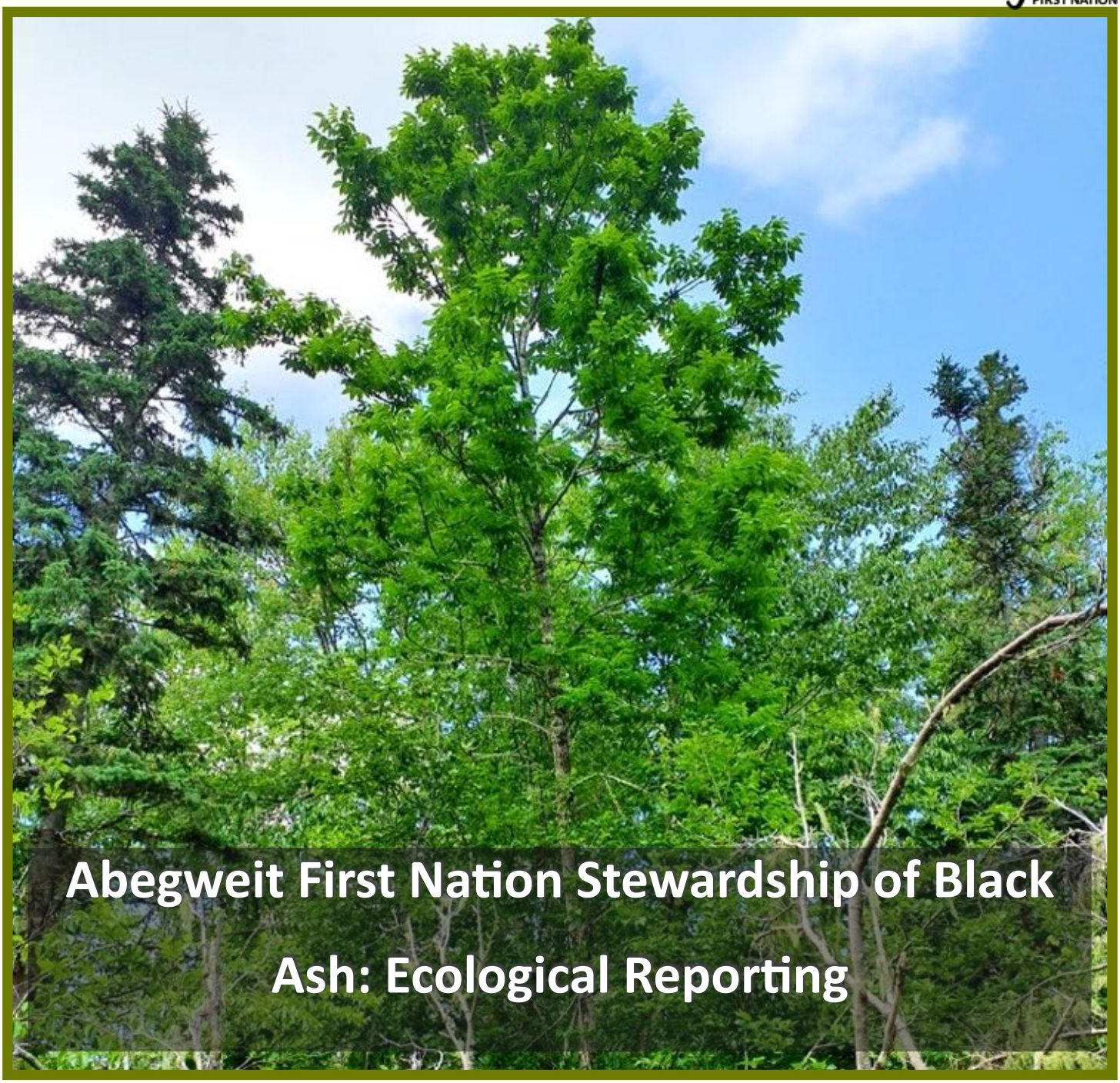
macphail woods ecological forestry project

Abegweit FIRST NATION



Abegweit First Nation Stewardship of Black Ash: Ecological Reporting

Prince Edward Island CANADA

Environment and Climate Change Canada
Environnement et Changement climatique Canada

A PEI Forested Landscape Priority Place Project

April 15, 2024

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Macphail Wood Ecological Forestry Project

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Black Ash with Cinnamon Fern in Wooded Swamp

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Island Nature Trust - Passport to Nature 2023 - Black Ash Walk at Dromore

Acknowledgements

Black Ash Seed along Morell River

The fieldwork, restoration and public outreach activities of the **Black Ash Project** have been a joint effort between the **Abegweit Conservation Society** and the **Macphail Woods Ecological Forestry Project** through support from the **PEI Forested Landscape Priority Place for Species at Risk** Funding.

There are also a number of other organizations that have been integral to the project. These include local land stewards such as: the Island Nature Trust, The Nature Conservancy of Canada, the Provincial Government, Lennox Island First Nation and various private land owners.

Thanks is also due to the Atlantic Canadian Conservation Data Centre and their staff. They provided many of the historic locations that helped to start the fieldwork. Several members of their staff participated in field visits to help improve biodiversity data. They have also been a resource to confirm obscure or unknown species.

Thank you to the long history of data collectors & GIS analysts from the Federal and Provincial Government. Their data informed the fieldwork as well as assisted in finding new sites across the Island. Thank you as well to PEI Provincial Nursery staff for growing such wonderful Black ash seedlings.

Hobblebush - *Viburnum lantanoides - S1S2*

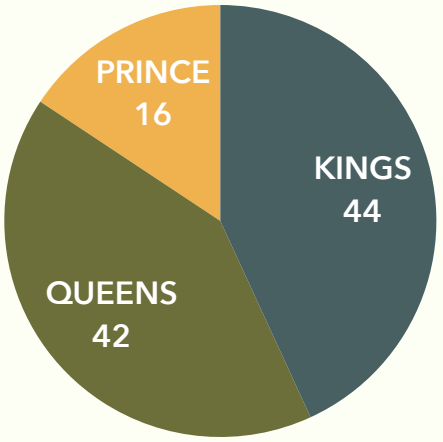
Black Ash on PEI

CJ Cleal (Abegweit Conservation Society) with young Black Ash

Black ash are an important and symbolic species, both ecologically and culturally. For the Mi'kmaq people of PEI, this tree and many of its associated species have innumerable values and usages, truly intrinsic parts of their culture and day-to-day lives. Ecologically, black ash grow in wet habitats, such as in wooded swamps and along forested rivers. These places are critical biodiversity hotspots while also fulfilling a number of important ecological services.

While once almost a fully-forested province, PEI's wild habitats have undergone drastic changes over the last 300 years. This has resulted in the reduction of the extent and health of most of our wetlands, swamps and rivers provincially. While hard-hit, black ash have proven to be a versatile species, able to grow in a variety of wet habitats, even when other conditions vary. Despite black ash's persistence and resilience, land-use and other threats, such as the Emerald Ash Boring Beetle (EAB), have resulted in this species becoming officially threatened federally. Provincially, black ash is ranked as a rare species, although EAB has not yet been reported in PEI.

SURVEYED SITES BY COUNTY

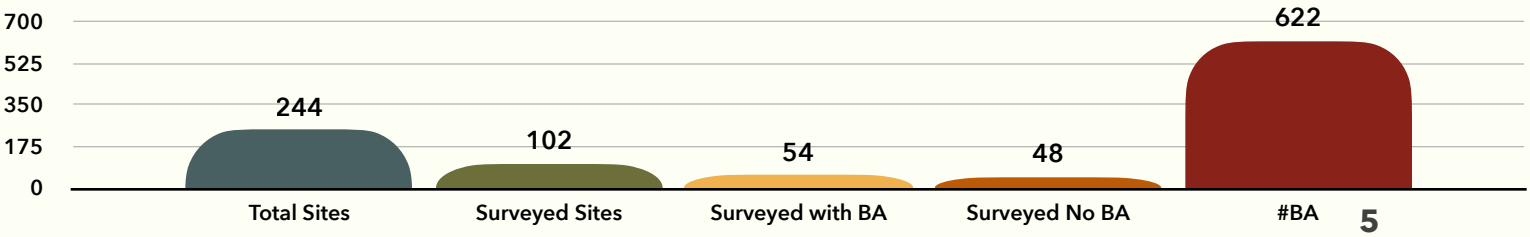


Initially focused primarily on finding wild black ash populations, this project has grown to include a number of goals.

- Improving provincial knowledge of black ash populations, extent, threats and ecological preferences.
- Outreach and education for local groups and the general public about this important species and its habitats.
- Restoration plantings of black ash and native companion species across PEI, including on-going monitoring.
- Monitoring for EAB and other threats to black ash, as well as collecting seed when found.

Although primarily a joint-partnership, the scope and community of this project has grown to include many of PEI's conservation and watershed groups, including the Island Nature Trust (INT), Nature Conservancy of Canada (NCC), Lennox Island First Nation, Atlantic Canadian Conservation Data Centre (ACCDC) and many others.

ALL COUNTY SITES SUMMARY



Black Ash Project History

The Black Ash Project field survey data was collected between December of 2020 and March 2024 by a team composed of staff from the Abegweit Conservation Society and the Macphail Woods Ecological Forestry Project.

Black ash plantings were led by staff from the Macphail Woods Ecological Forestry Project, primarily Michael Speelman. Other relevant conservation organizations, as well as Abegweit Conservation Society staff participated in many of the plantings. These specimens have been geo-referenced and will be monitored as part of the next steps of the project.

While not an initial aspect of the project, outreach and consultation about black ash and their swampy habitats has become an increasingly important component due to public and national interest about this species. Project activities have been showcased numerous times by CBC News as well as once by Atlantic Forestry Monthly. In addition to public presentations, calls for the black ash team to consult and confirm potential black ash sightings have become common. A number of strong partnerships have emerged from this project. Whether helping the PEI invasive species council monitor for Emerald Ash boring beetles, participating in local wetland and river conferences or assisting regional experts develop better predictive modelling, the cumulative expertise gathered over the course of this project has mutually benefitted are large number of local partners.

2021 SEASON

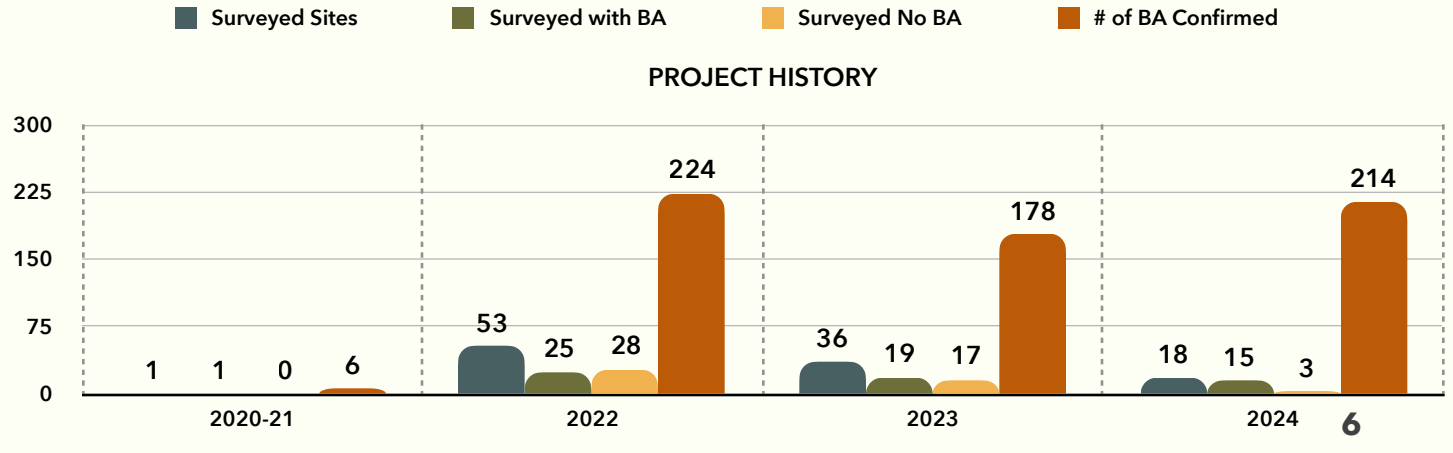
The first year of the project focused on gathering the historical database of black ash locations across the province, as well as creating an assessment rubric and a data collection system. Sites surveyed were used to test the accuracy of the historical records as well as fine-tune the ecological assessment for the project. Fieldwork was also an opportunity to provide training for staff from the Abegweit Conservation Society in data collection and plant identification. Over 1000 black ash saplings were delivered to the Macphail Woods Nursery for care and maintenance.

2022 SEASON

The 2022 season was focused on field surveys & finding unrecorded sites. Fieldwork was primarily focused in Queens and Kings counties, although select sites in Prince county were visited. A number of new sites were found through manual GIS analysis which resulted in 120 new black ash recorded. This season also included public outreach and education, including walks, talks, press coverage and even participation in a podcast. Black ash saplings continued to be nurtured at the Macphail Woods Nursery.

2023 SEASON

The 2023 season continued the previous aspects of the project such as outreach, training and field surveys. Additionally, restoration plantings of the young black ash saplings began this season. 446 black ash were planted across all three counties, as well as 135 native companion species specimens. The restoration work included other conservation organizations and volunteers as often as possible, using these plantings as educational, experiential and community-building events.



Black Ash Project Fieldwork

As mentioned, the fieldwork portion of this project has been a joint effort primarily between staff from the Macphail Woods Ecological Forestry Project and the Abegweit Conservation Society. Over the course of the 2023 field season, a number of other groups participated in restoration and fieldwork, often learning about native flora and black ash identification as well as restoration planting techniques.

Black ash sites are often wet and swampy with poor access, creating a number of challenges for assessment and restoration work across the province.

CHALLENGES:

Tough Terrain: Black ash generally grow on poorly-drained soils in wet habitats. These landscapes are often littered with a variety of hazards and obstacles, slowing exploration as well as creating challenging working conditions. Ponds, rivers, swamps, marshes and other wetland habitats have all been visited over the course of the project. These habitats have high populations of mosquitos and other biting insects, as well as a variety of prickly and poisonous plants such as roses and poison ivy. These challenges often affected the accessibility of these sites as well as the speed of the survey team.

Inaccurate or Unknown Locations: The source data for black ash trees often had large ranges of inaccuracy for their recorded locations. Although this data was still integral in finding black ash specimens, a large part of locating trees was based on the skill of the field team. This has most likely resulted in some missed historic specimens, particularly for sites visited earlier in the project, when the team had less training and experience. This also contributed to a larger proportion of field surveying time used just in finding the black ash specimens, sometimes leaving little time left for in-depth assessment.

Recovering Black Ash along Orwell River

Post-Tropical Storm Fiona: This extremely strong storm hit PEI in the autumn of 2022, resulting in many areas of substantial blow-down across the province. This created a number of new challenges for the 2023 field and restoration work, further limiting access as well as creating dangerous working conditions. Numerous sites that were candidates for black ash plantings had to reconsidered due to safety concerns. Fieldwork was both limited and slowed, sometimes greatly by ample fallen trees, often clogging riparian areas and barring access to where black ash are most likely to be found.

Black Ash Site Selection

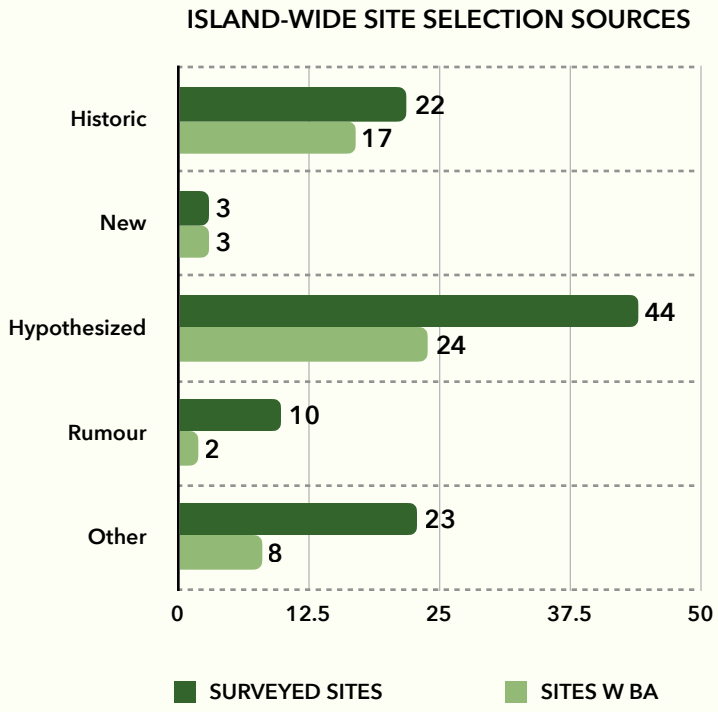
Common Flat-branched Moss, *Homalia trichomanoides, SU*

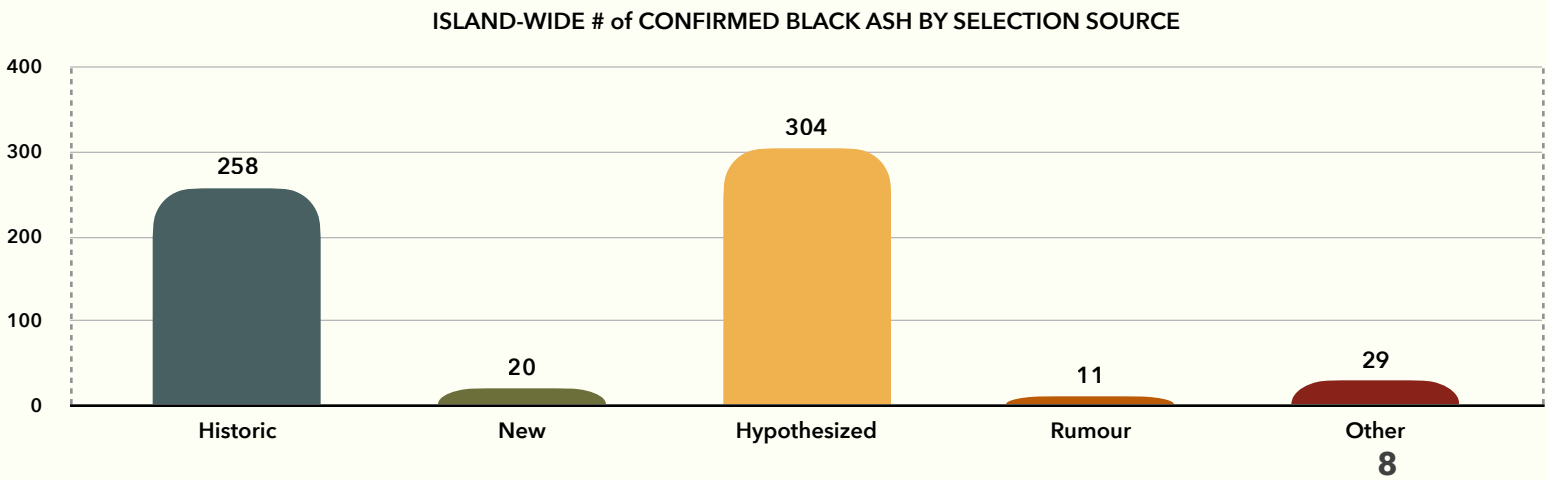
The Black Ash Project began with a hefty list of historic records as well as some oral rumours of black ash locations. The uncertainty error of these records varied wildly, with some records exceeding 2000m of possible location error. These records have since been pruned, merging very close locations and putting aside others with unhelpful uncertainty values.

A number of new sites have been added over the course of the project. Often due to new black ash being reported by local and regional organizations such as the ACCDC. Other sites were surveyed during fieldwork for other projects in which either black ash themselves or suitable habitat was found.

Many new sites were found through GIS analysis, hypothesizing areas with suitable conditions and land-use histories. This methodology has proven valuable, resulting in the discovery of 304 black ash. It is currently being formalized and improved by experts with the ACCDC.

As mentioned, more and more sightings of ash are being reported due to the popularity of the project. Some of these "rumours" are old stories and local histories, while others are ash sightings from non-expert sources.





Finding Black Ash on PEI

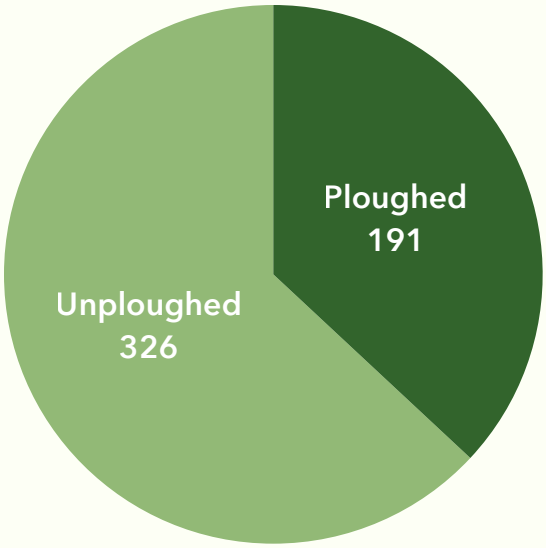
Finding Black Ash along steep Pisquid River Valley

As has been demonstrated by this project, there are more populations of black ash scattered across PEI than previously thought. Small groups of black ash can be found growing in wet habitats and riparian areas in many locations across Kings and Prince county, as well as eastern Queens county. Despite healthier provincial populations and a wider distributional extent than expected, black ash remains a rare species.

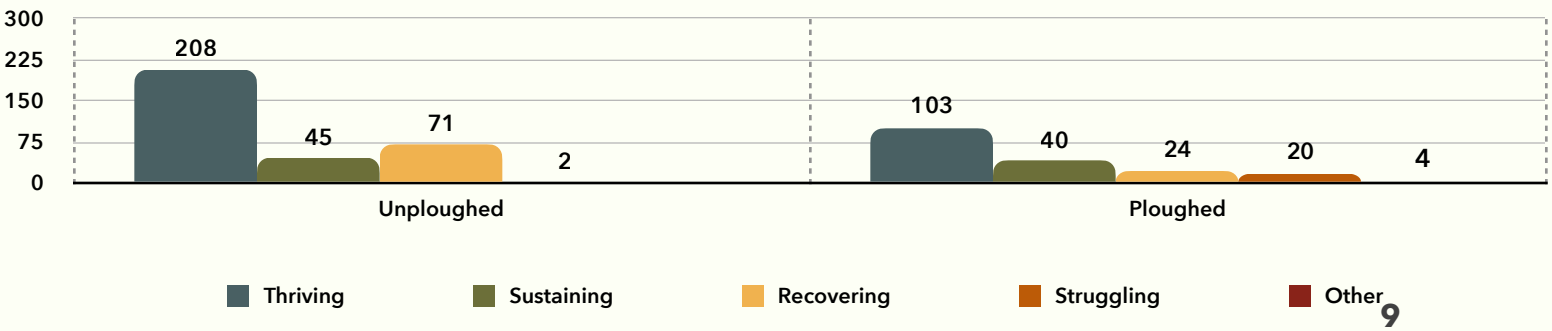
The pie-chart to the right shows the number of confirmed black ash on lands most likely plowed since 1900, excluding wetland areas. It indicates that agricultural plowing greatly reducing black ash populations.

The chart below showcases the number of confirmed black ash by both agricultural history and cohort health rating, as observed during fieldwork. Unploughed lands are also home to a greater proportion of thriving black ash as well as less cohorts of poor health.

# of Confirmed Black Ash by Provincial Unploughed Layer (excluding Wetlands)



# of Black Ash by Provincial Unploughed Layer & Health



PEI Black Ash: Distribution

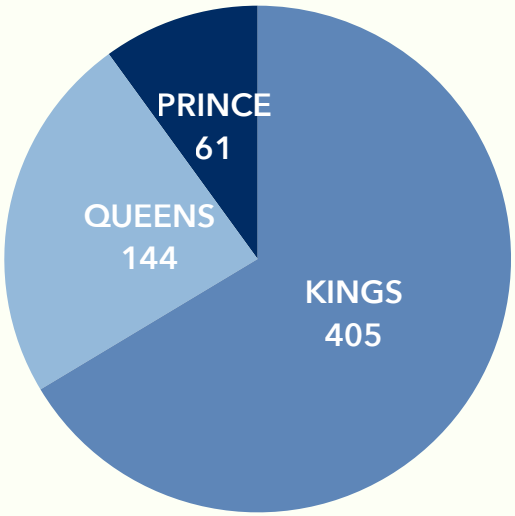
Historically, black ash have been primarily considered to be a Prince county species, with few confirmed specimens recorded in eastern PEI prior to the 1960s. In recent years, a number of conservation groups, primarily the ACCDC, have increasingly been finding black ash in eastern Queens and Kings county. The results of this project have helped to continue this trend, discovering previously unknown remnant populations in eastern PEI.

Fieldwork to date has been focused in Queens and Kings county, as both major project partners are based out of this area. 2024 season fieldwork is being planned to target more Prince County sites.

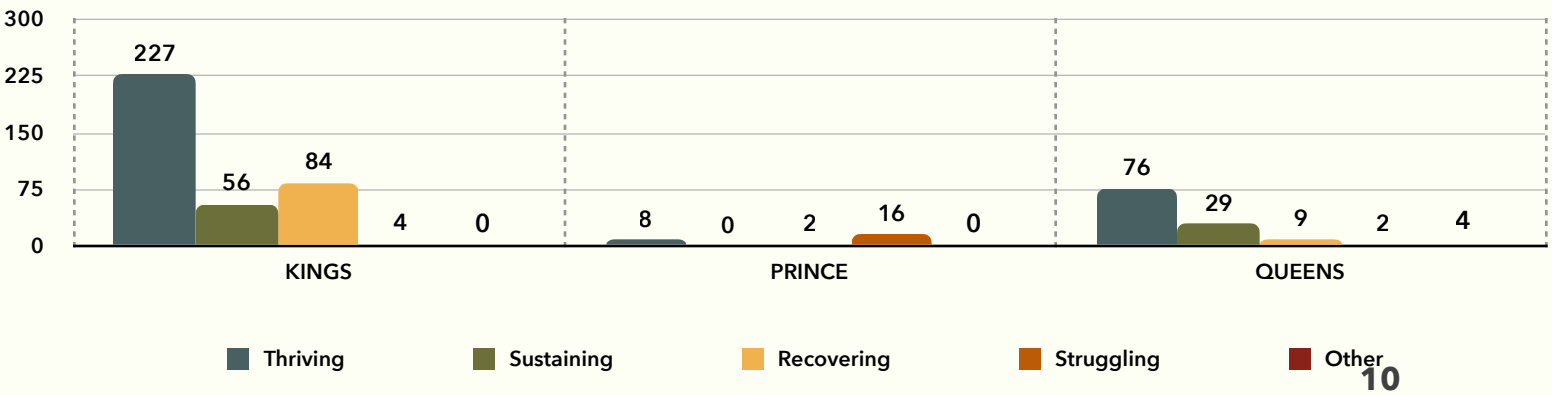
The pie-chart to the right shows the number of confirmed black ash by county. The county distribution is largely affected by site selection, however the number of black ash found in Kings and eastern Queens county is much higher than previously thought.

The chart below showcases confirmed black ash by county and cohort health.

Confirmed Black Ash by County



# of Black Ash by Provincial County & Health

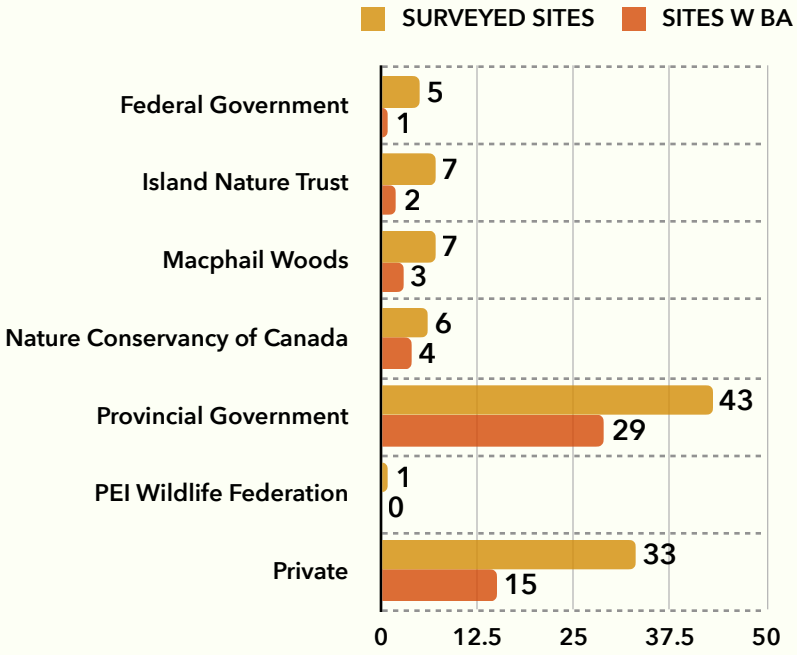


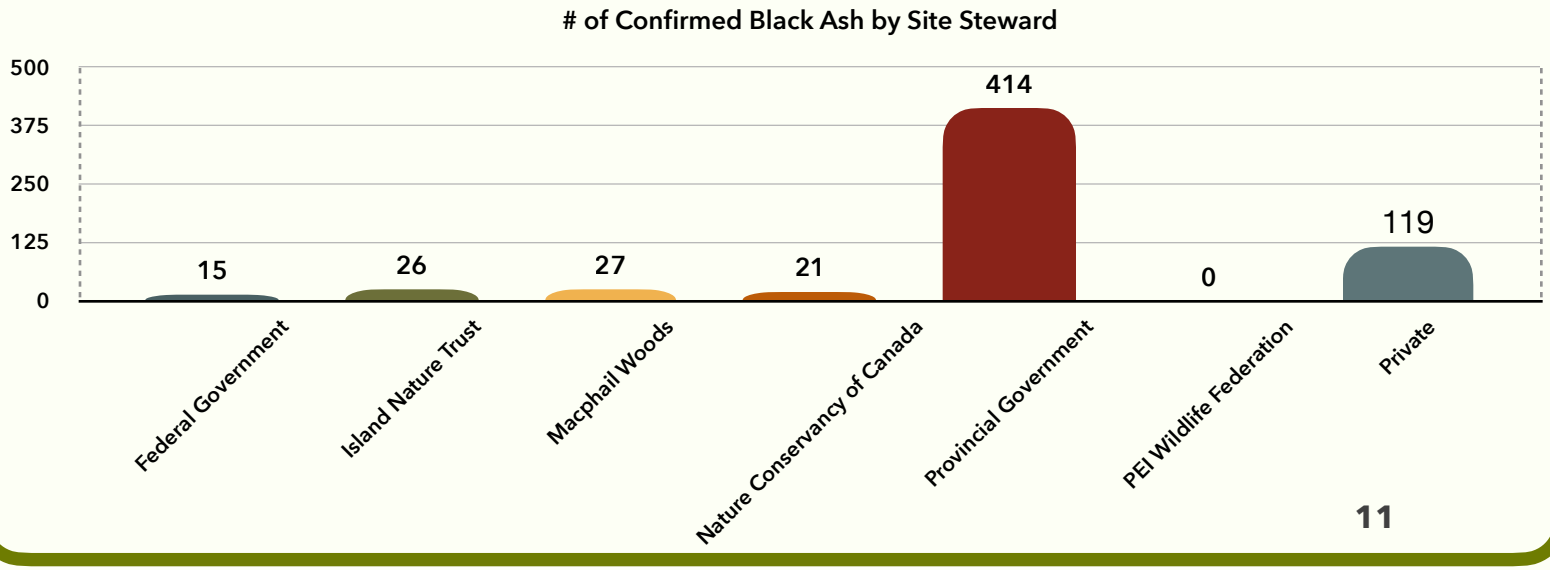
PEI Black Ash: Stewardship

Planting Black Ash with the Nature Conservancy of Canada

Fortunately, many areas where black ash are found are swampy or along protected riparian zones and wetlands. Many of these forests were unfit for plowing or difficult to harvest, lowering their profitability, effectively protecting them from high-levels of ecological disturbances. Despite the large proportion of private land ownership provincially, PEI's black ash are more often found growing in publicly owned or protected land.

The chart to the right shows the number of surveyed sites by land steward, while the chart below showcase the number of confirmed black ash by land steward. The greatest number of black ash on PEI can be found growing on publicly owned land, although approximately 20% have been found growing on private land.





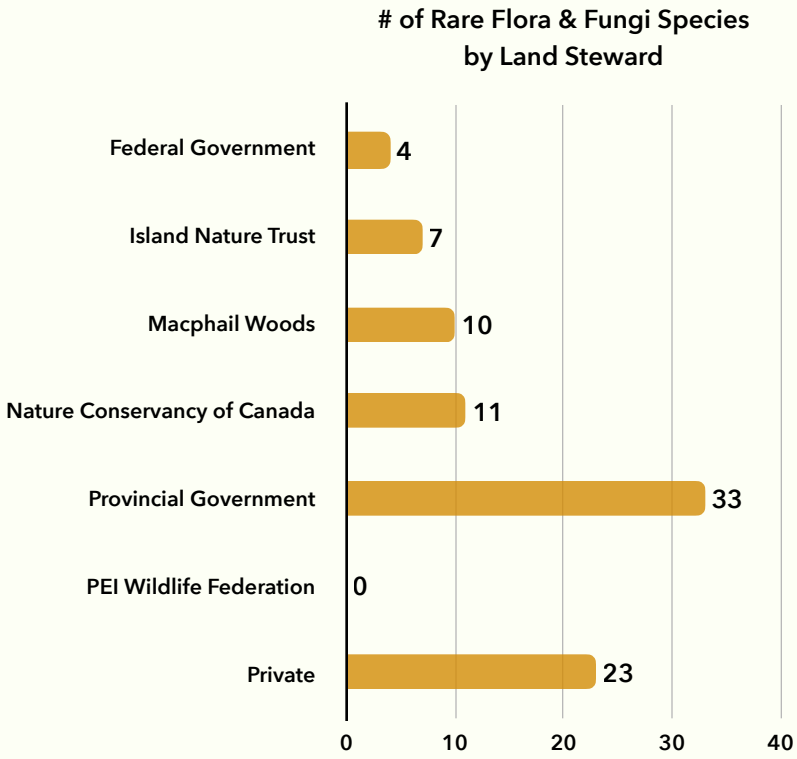
PEI Black Ash: Stewardship

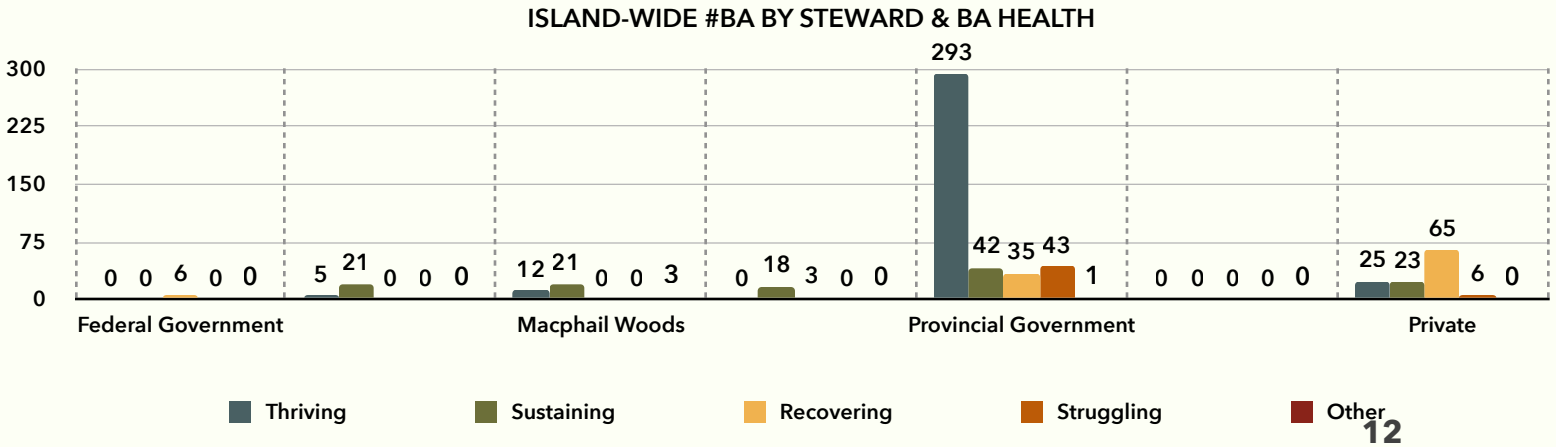
Old-Man-of-the-Woods, *Strobilomyces strobilaceus, SU*

While many of the historical factors affecting specimen and site health are out of the control of present-day stewards, their on-going conservation efforts can still be reflected in the project's findings.

The chart to the right shows the number of rare flora and fungi species found across all sites by each steward. It is should be noted that there are differences in the number of sites visited as well as time at each site, across each category.

The chart below displays the number of confirmed black ash by land steward and cohort health. While hardly conclusive, the data suggests that black ash at privately owned sites tend to be in poorer health. It would also suggest that local conservation groups', as well as provincial departments', stewardship strategies are having some success, with lower proportions of poor health populations.





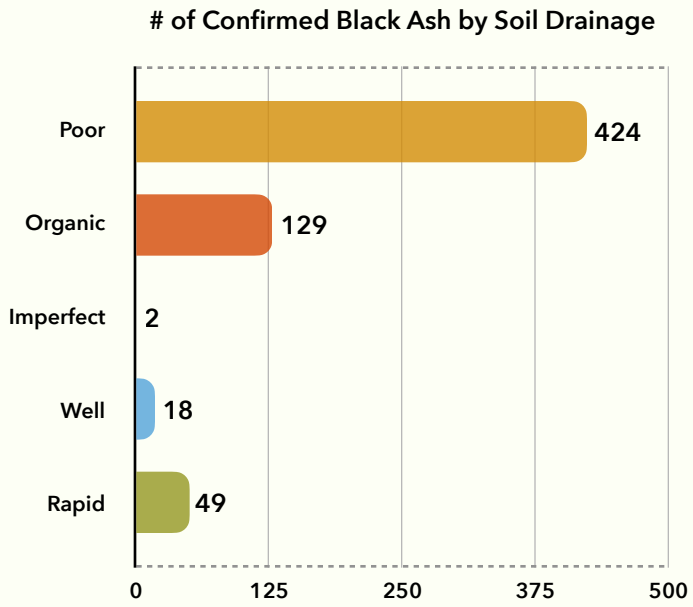
PEI Black Ash: Drainage

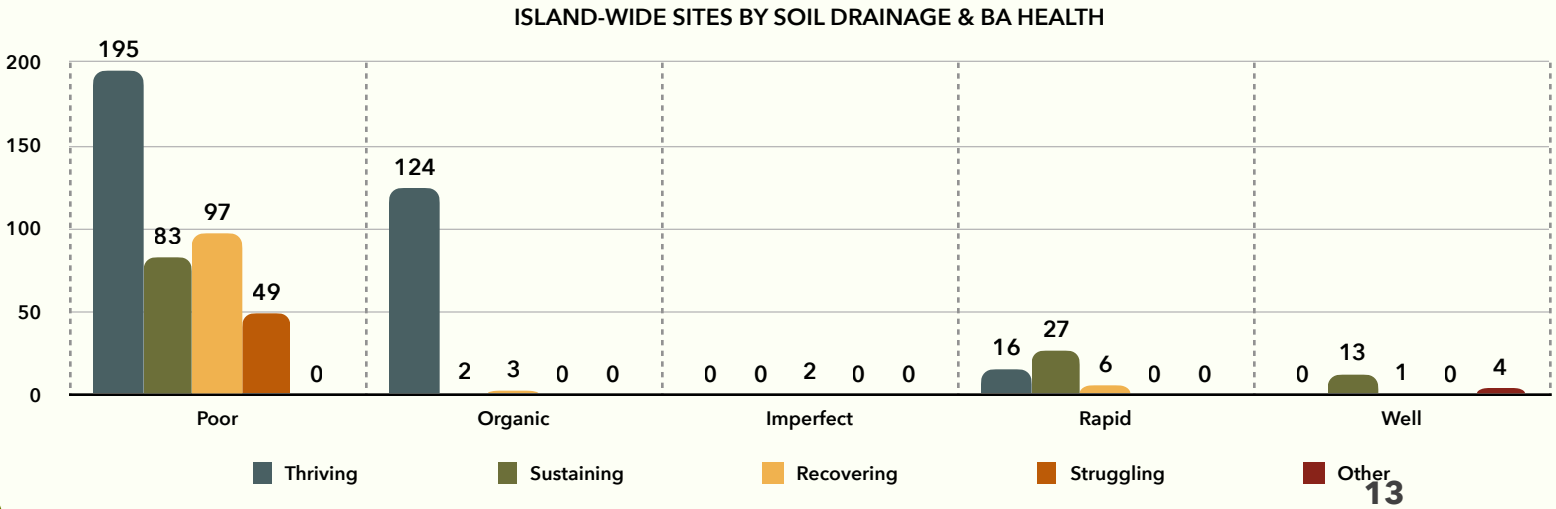
As is well-known, black ash are a species very tolerant to water-logged soils, often out-competing other species to become an important canopy component in wet forests.

The chart to the right highlights this fact, showcasing the number of confirmed black ash by soil drainage. By far the greatest number of specimens were found growing in poor drainage as well as organic soils.

The 2023 field season targeted a number of upland riparian zones with many specimens found growing along these rivers in soils of higher drainage. While lower in population, these specimens were often quite healthy and large.

The chart below showcases the number of confirmed black ash by soil drainage and cohort health.





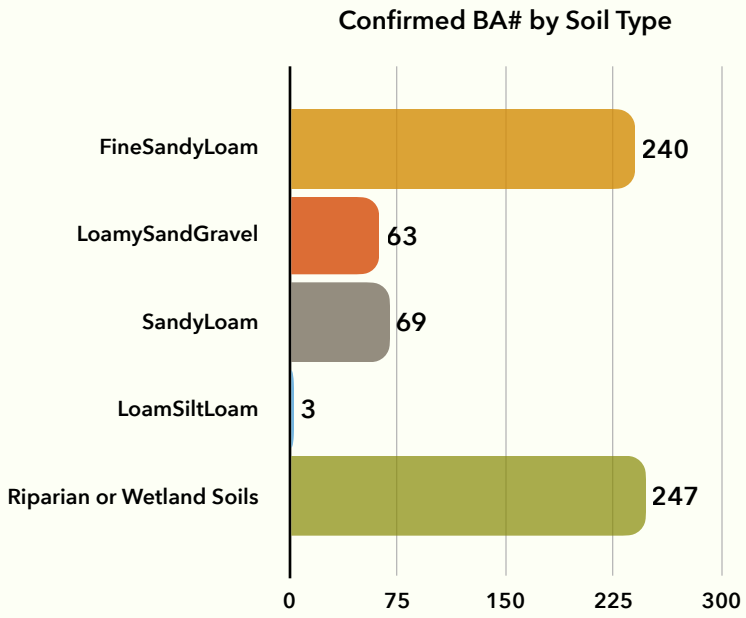
PEI Black Ash: Soils

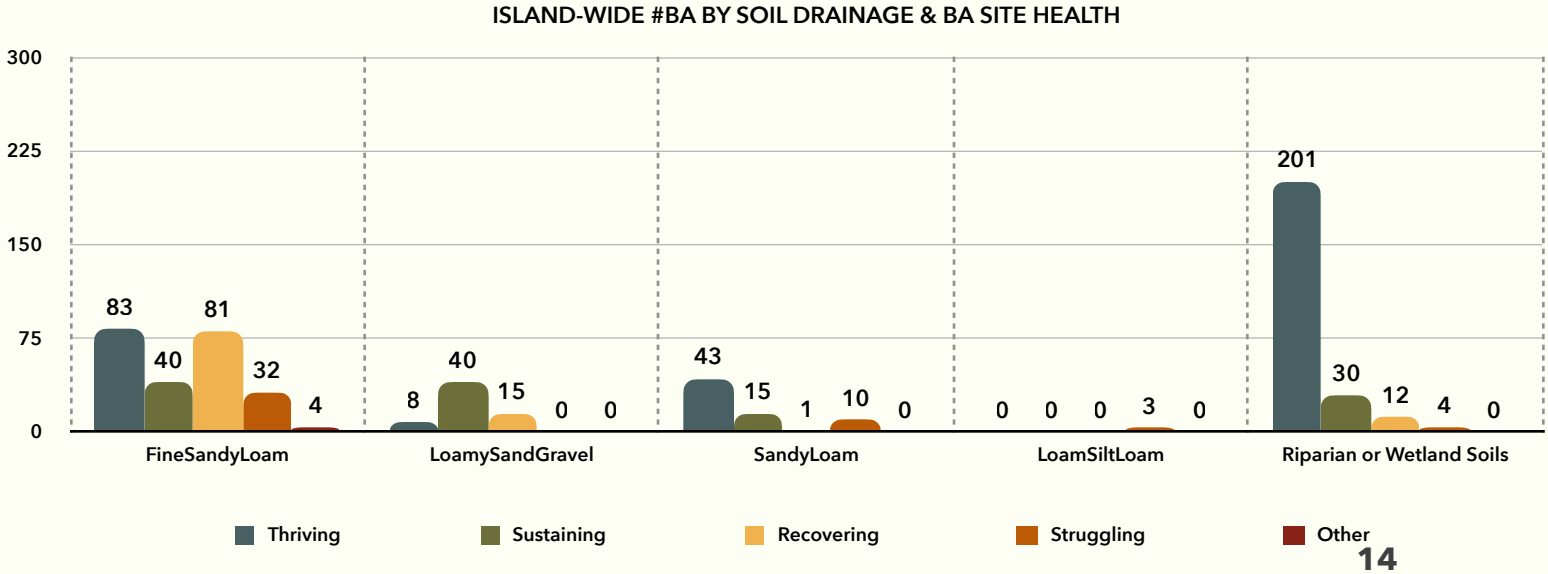

Snake Liverwort -*Conocephalum salebrosum - SU*

All soil data came from the Provincial Soil GIS Layer, as no soil sampling has been done as part of the project to date.

The chart to the right shows the number of confirmed black ash by soil type. While black ash have been found growing across a number of soil types, they have primarily be located at sites with fine sandy loams or riparian/wetland soils.

The chart below displays the number of confirmed black ash by soil type and cohort health. Black ash found growing in riparian or wetland soils were proportionately the healthiest.





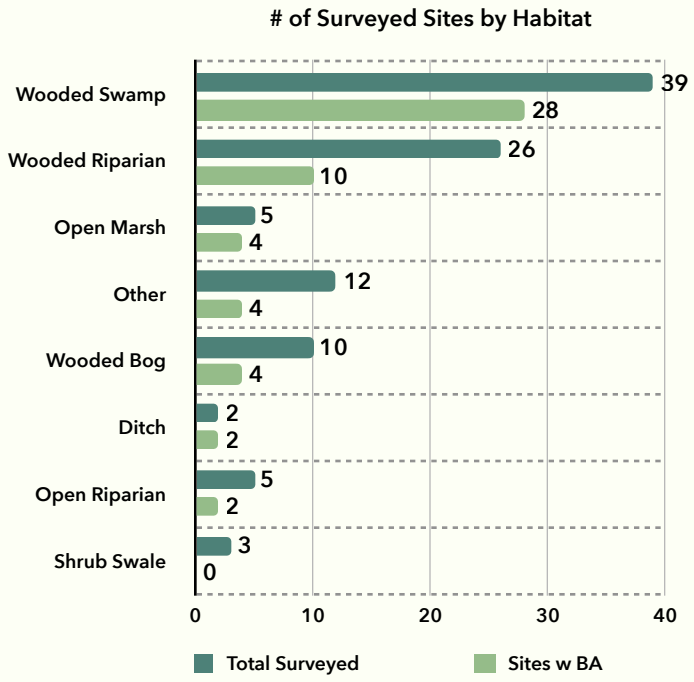
PEI Black Ash: Habitat

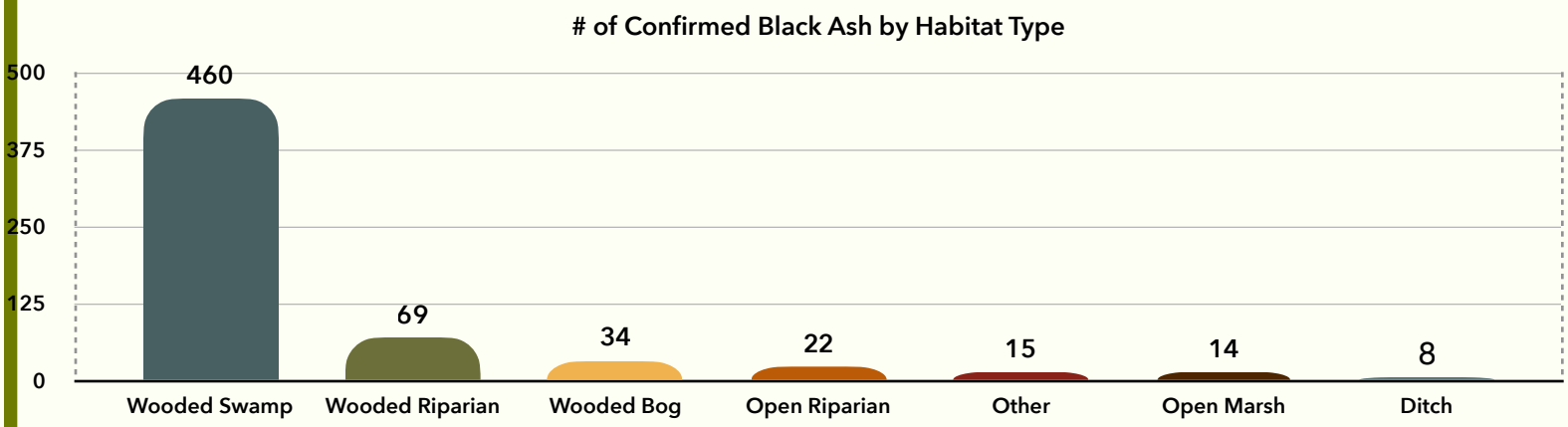
Yellow Lady's Slipper, *Cypripedium parviflorum, S2S3*

As mentioned in last seasons reporting, black ash have been most commonly found growing in wooded swamps, wet forest with a predominantly deciduous canopy. That being said, they are a flexible species, able to grow in a variety of light conditions and habitats.

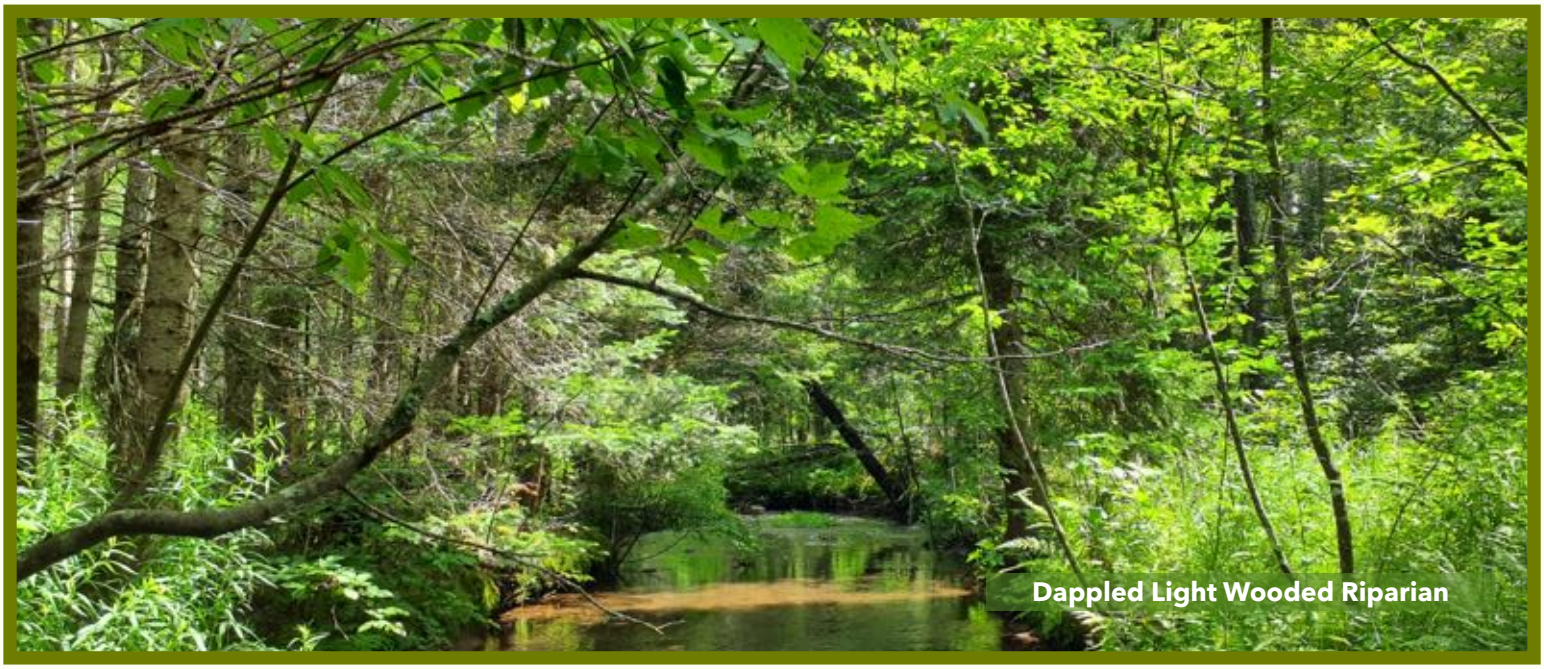
The chart to the right displays surveyed sites by observed habitat. The 2023 field season saw the addition of more wooded riparian areas, especially in upland forests. While black ash can be found across a number of habitats on PEI, they are often growing in small cohorts.

The chart below shows the number of confirmed black ash by habitat. While most black ash can be found growing in wooded swamps, other habitats have been substantially less surveyed.



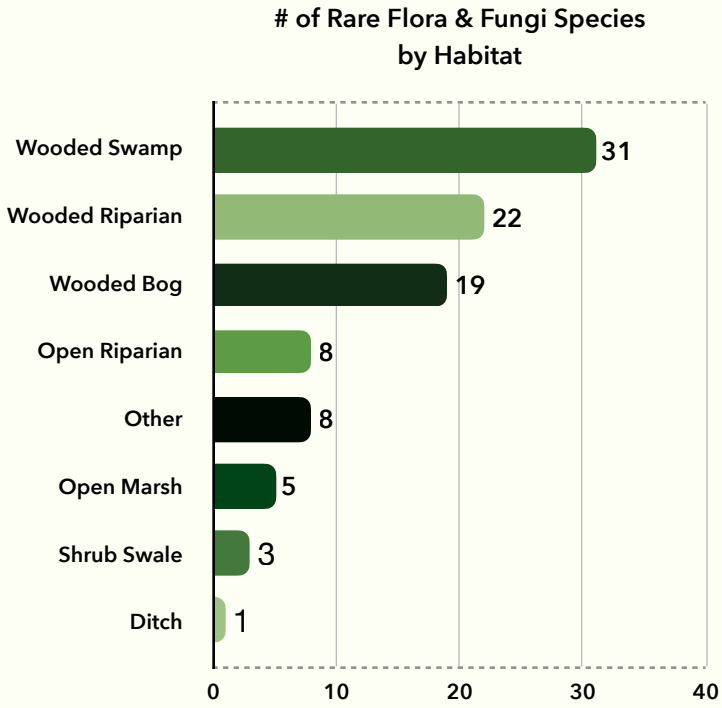


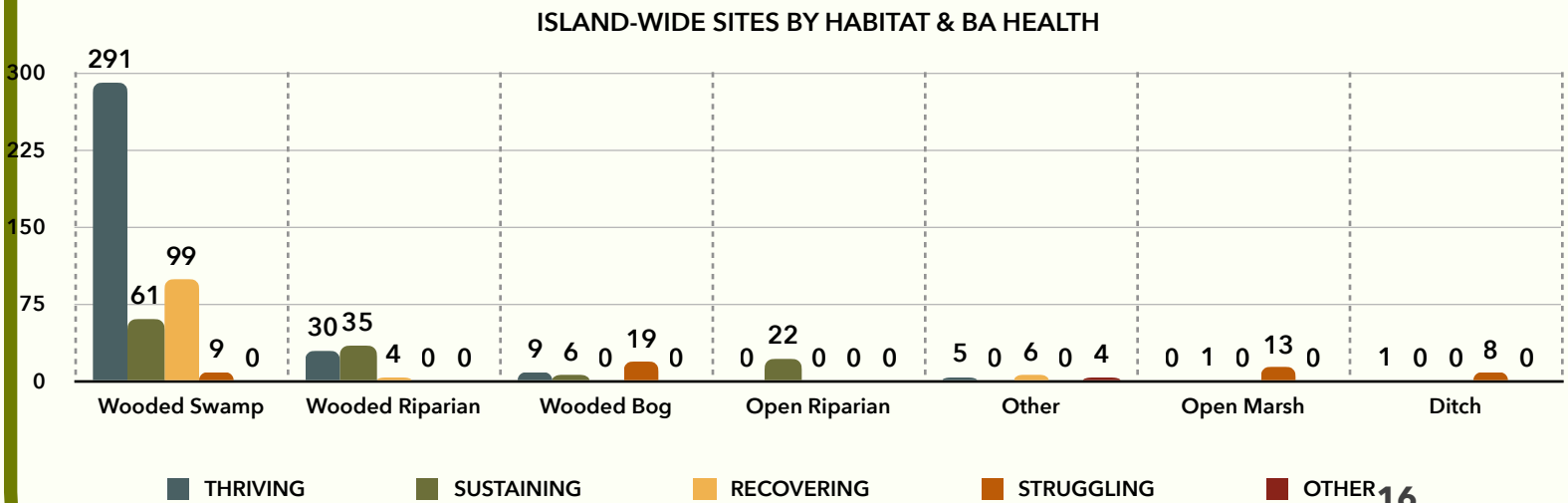
PEI Black Ash: Habitat


Dappled Light Wooded Riparian

The chart to the right shows the number of rare flora and fungi species found during fieldwork at all sites across each habitat type. Again, this is heavily influenced by the number and length of site visits across each category. Black ash often grow in habitats with many rare native species.

The chart below displays the number of confirmed black ash by habitat and cohort health. While hardly conclusive, this graph showcases this species preference for deciduously dominated wooded swamps. It should also be noted that specimens found across wooded riparian habitats were generally of better health than more open habitats.





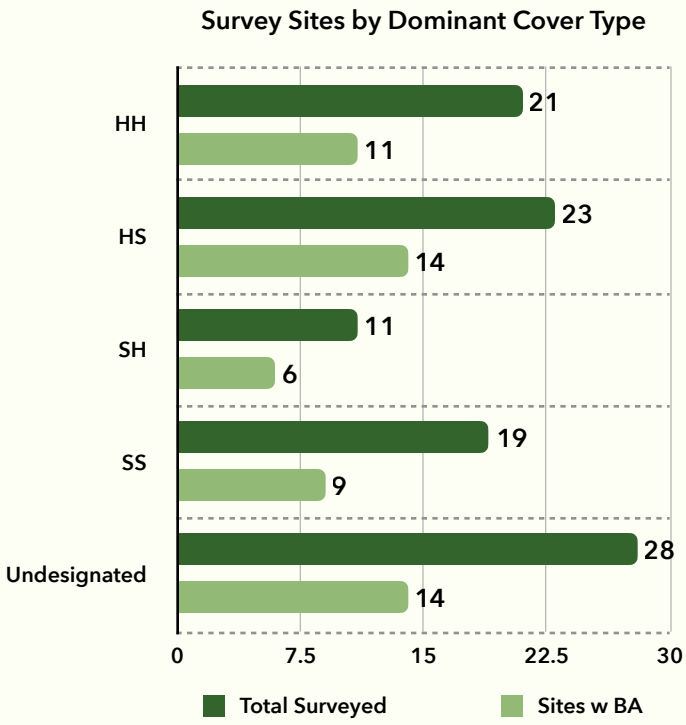
PEI Black Ash: Cover Type

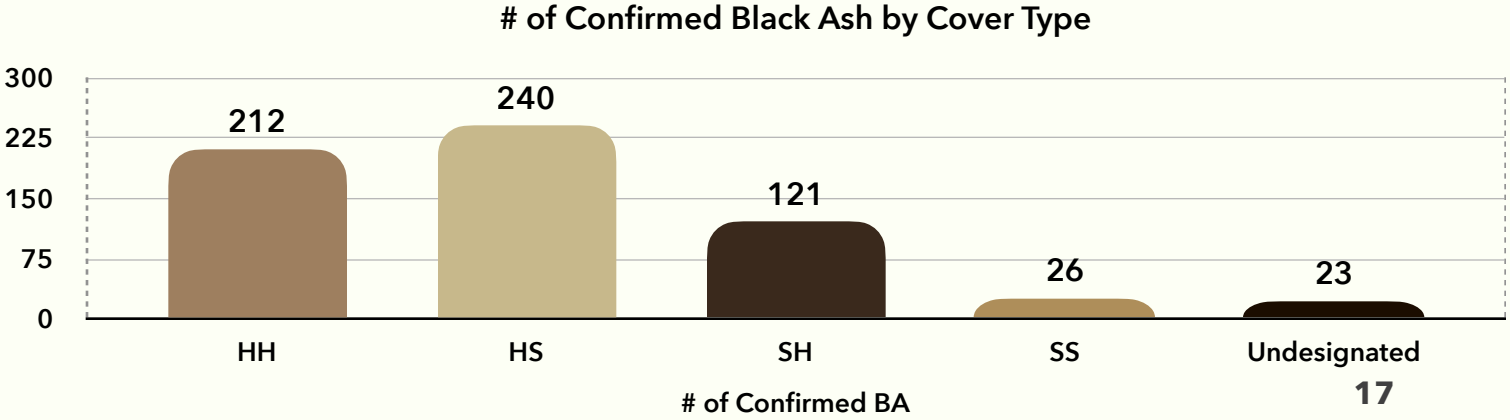
Black Ash amongst Red Maple and Yellow Birch along the Valleyfield River

As mentioned, black ash on PEI seem to thrive under predominantly deciduous canopies. It these forests, populations tend to be higher with better general specimen health.

The chart to the right shows survey sites by dominant cover type, based on the 2020 PEI Corporate Land-use inventory. As one can see, black ash have been found growing in a variety of different forest covers, generally across approximately 50% of surveyed sites.

The chart below displays the number of confirmed black ash by forest cover type. It clearly shows that canopies with high proportions of deciduous species tend to support much higher populations of black ash.



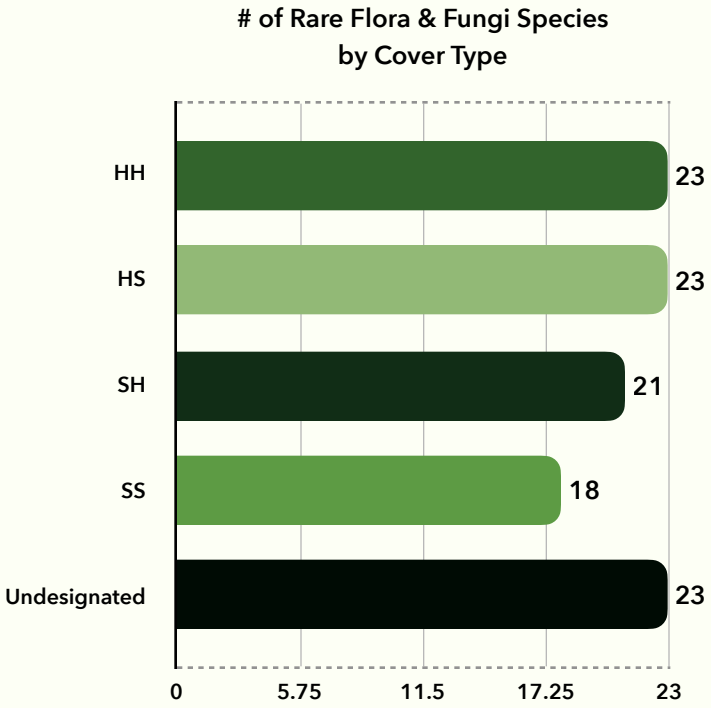


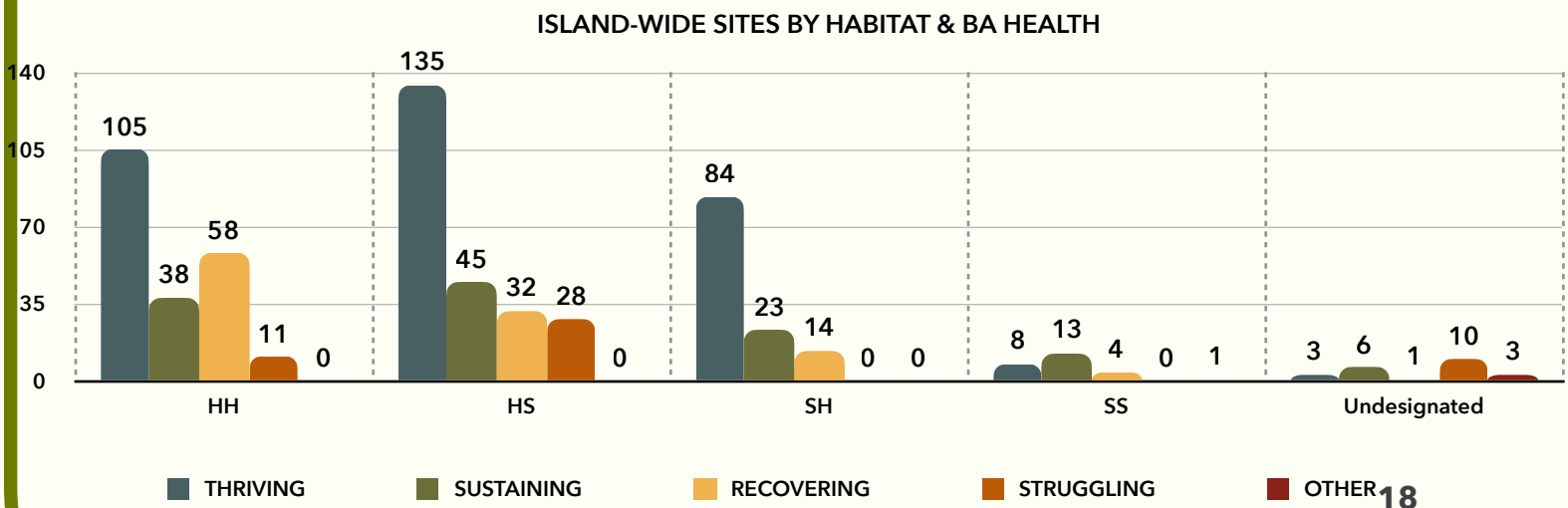
PEI Black Ash: Cover Type

Black Ash growing amongst a moderately coniferous canopy

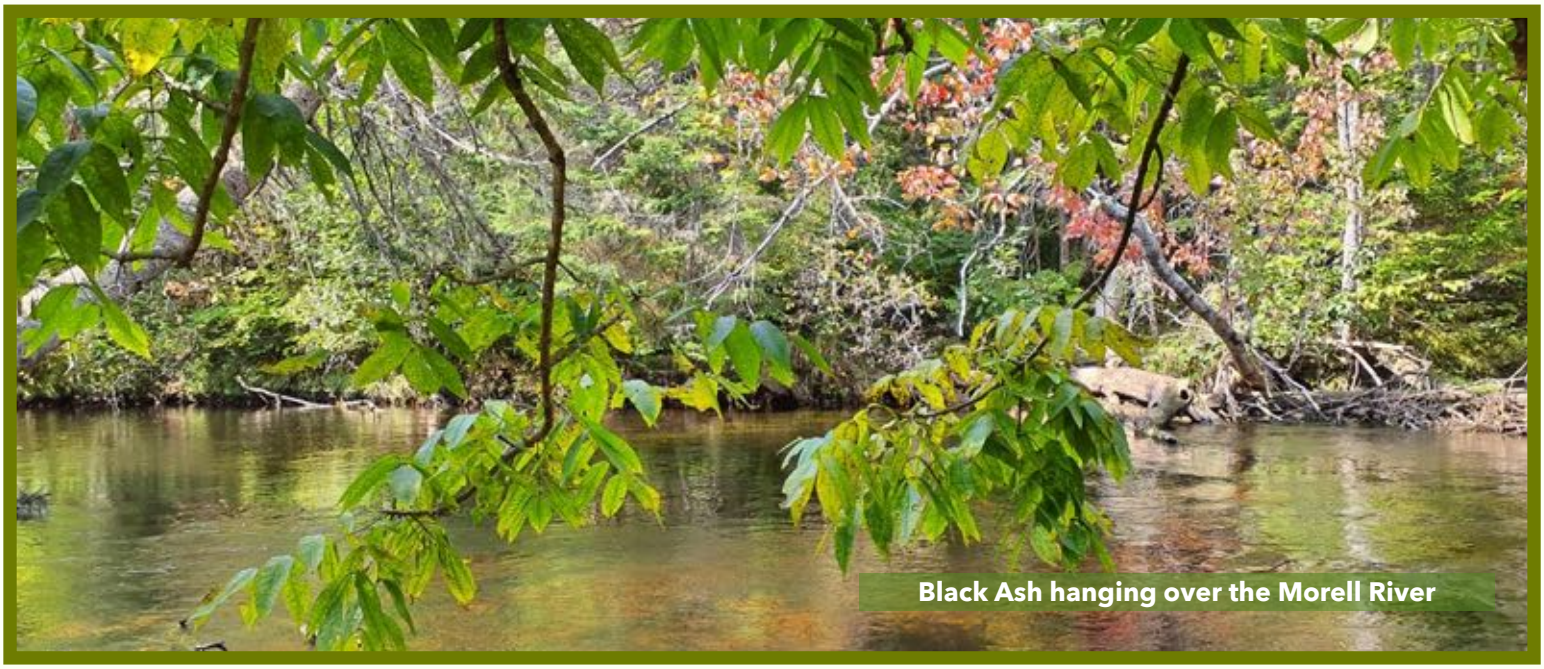
The graph to the right shows the total number of rare flora and fungi found across all sites by cover type. As one can see, most of the cover types had very similar results, although coniferous dominated canopies ranked slightly lower on average.

The chart below displays the number of confirmed black ash by cover type and cohort health. Proportionally, more healthy black ash are found across sites with more deciduous canopy cover. This metric is also affected by a number of other variables such as land-use history. A more detailed and complex cross-variable analysis would be needed to start teasing apart these varying influences.





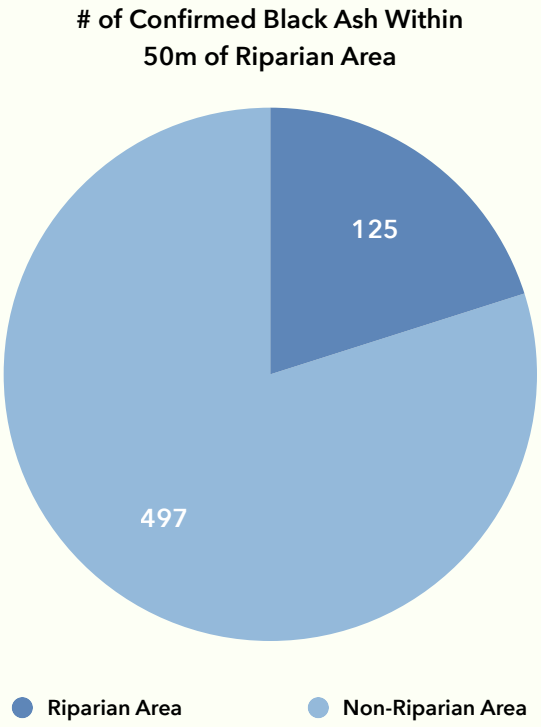
PEI Black Ash: Riparian Areas

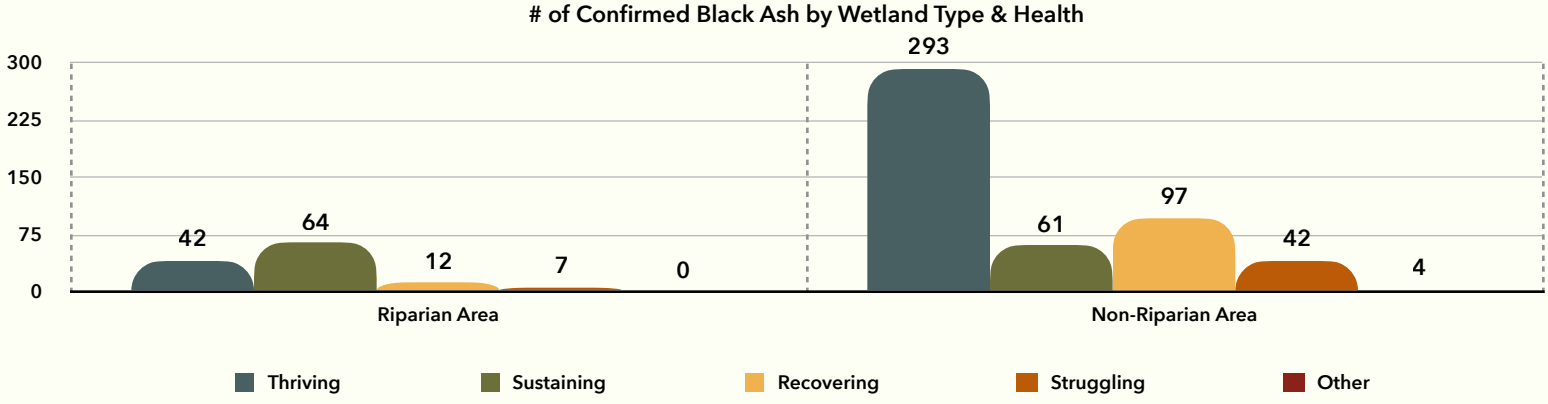


Black Ash hanging over the Morell River

As shown, black ash are a wet-soil specialist, often found growing along our streams and rivers. The pie-chart to the right shows the number of confirmed black ash which were growing within 50m of Island rivers. While most specimens were found growing outside of this designated 50m riparian zone, many were located just beyond of this arbitrary boundary. It is likely the 50m distance value is too small to accurately capture all soils heavily influenced by riparian waters.

The chart below displays the number of confirmed black ash by riparian zonation and cohort health. The greatest proportional of healthy black ash can be found outside of the 50m riparian buffer. It should be noted that many of these specimens were found growing in wooded swamps, often in non-riparian wet areas that connect various rivers branches and tributaries.

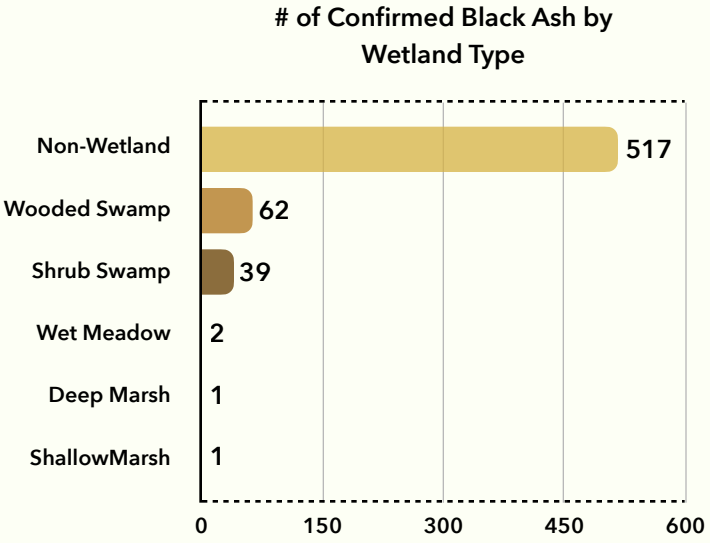


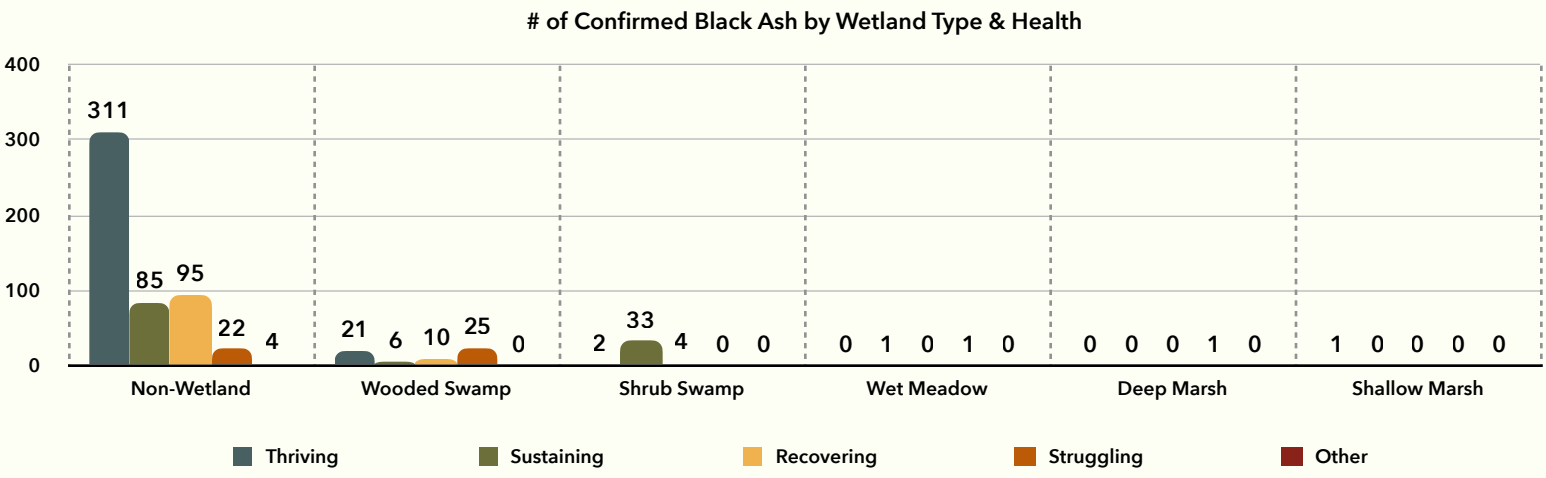


PEI Black Ash: Wetlands

While Island wetlands are difficult to classify, often a complex mosaic of various wetland sub-types, official Provincial wetland data does assign each wet area a primary class.

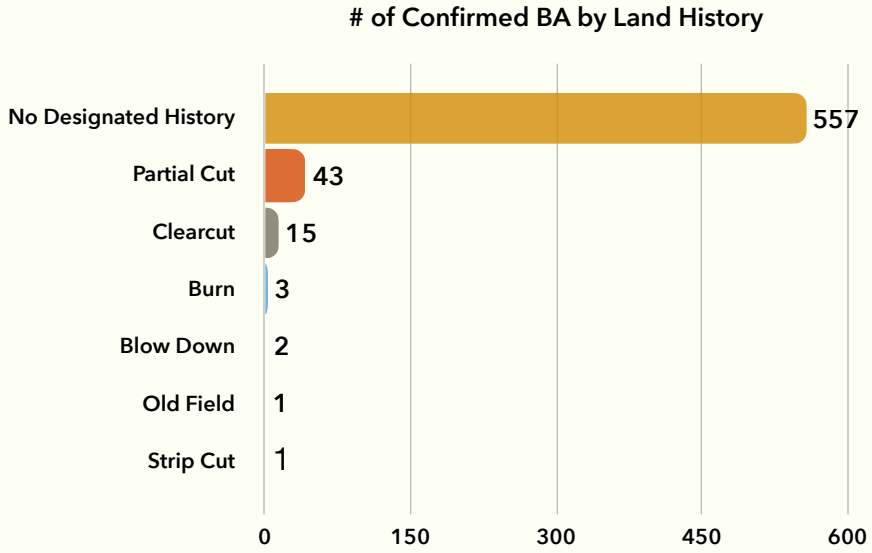
The graph to the right shows the number of confirmed black ash by the official primary wetland class. While most black ash surveyed were not officially growing in designated provincial wetlands, many of these were growing just outside of these imprecise boundaries. Official wetlands with black ash tended to be wooded swamps or shrub swamps, although the provincial category of wooded swamps includes boggier forests as well as deciduous wet forests. A number of the non-wetland black ash were growing in habitats that ought be reconsidered as official wetlands or riparian areas. While many other were growing in close proximity to official wetland borders.

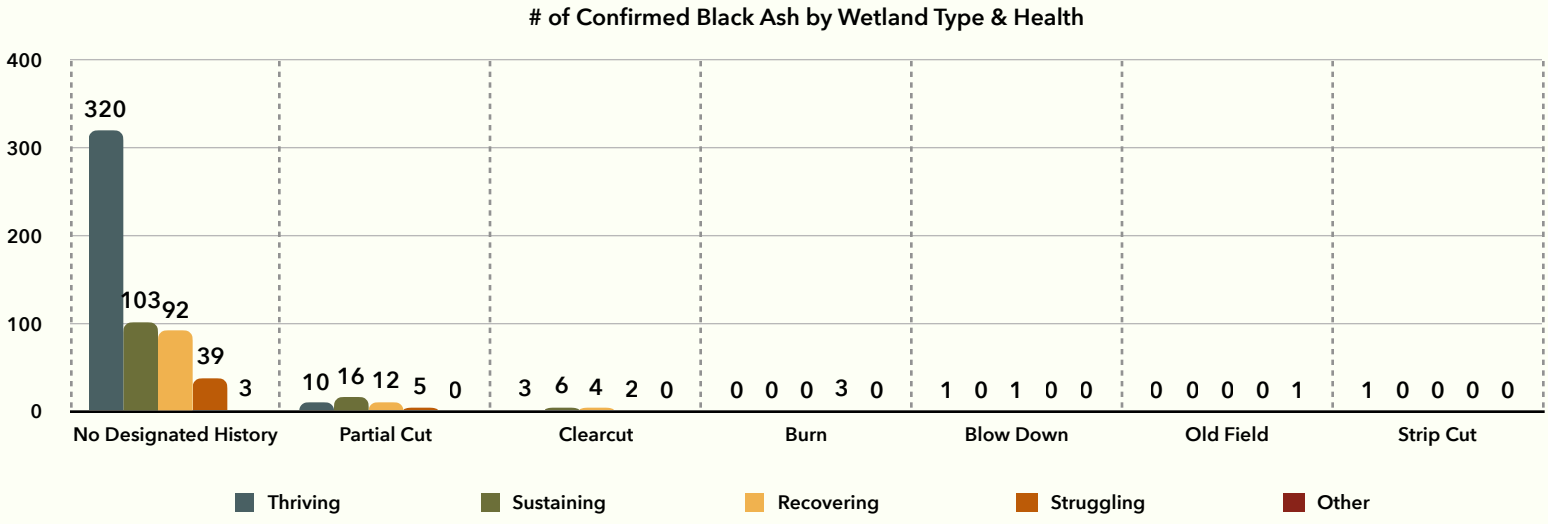




PEI Black Ash: Land Use

While past land-use has a substantial effect on local habitat health and biodiversity, it can be a hard attribute to understand without substantial research and fieldwork. The PEI corporate land-use inventory does include some historic land-use data, although this is far from comprehensive, generally covering forest related activities that have occurred since 1960. These records do not provide much insight into the long history of ecological disturbances seen across most of the Island over the last 300 years. That being said, the charts on this page showcase the much reduced populations of black ash found at sites with a history of disturbances.



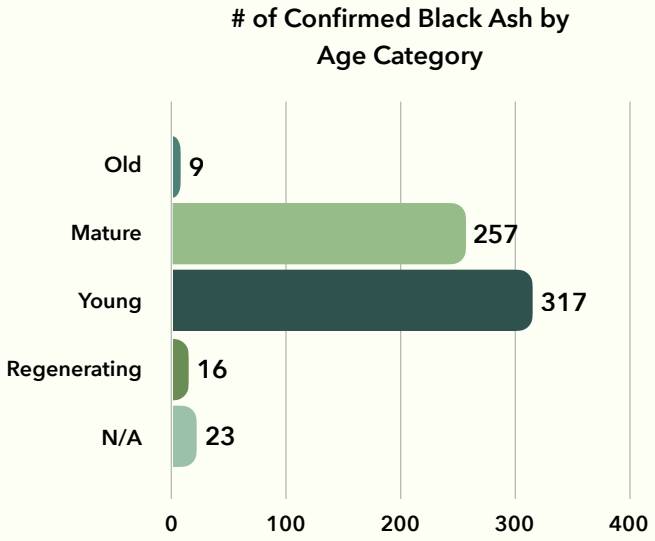


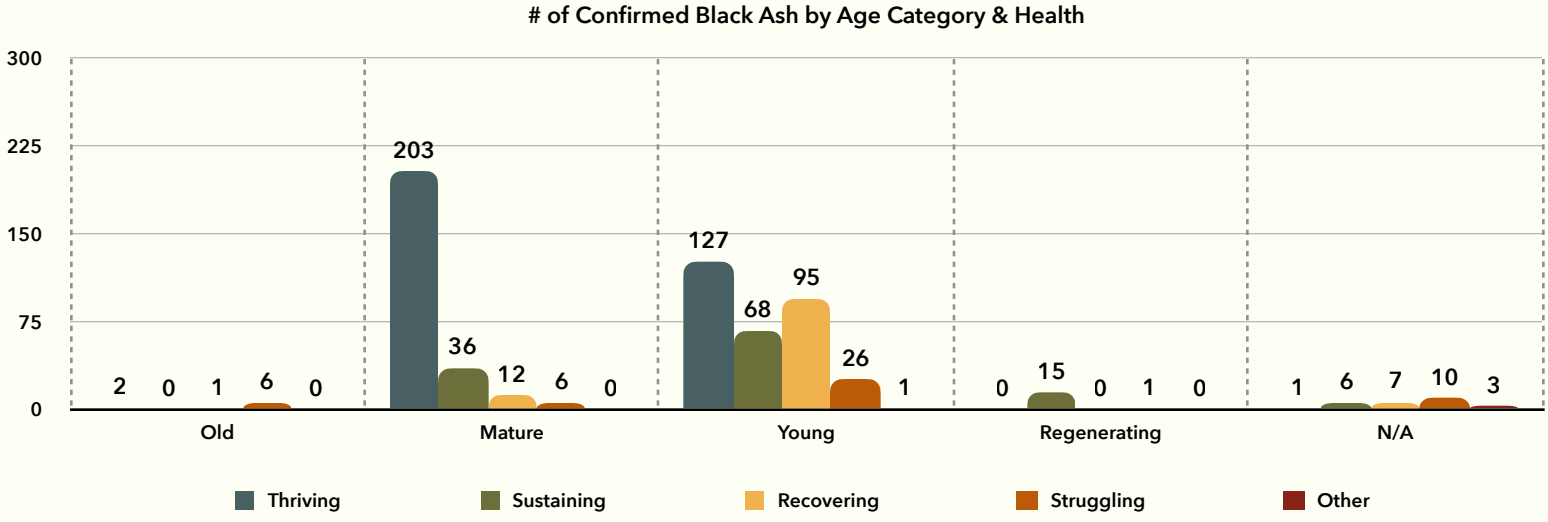
PEI Black Ash: Stand Age

Tall and Mature Black Ash along the Montague River

Again, these charts are based on data from the Provincial corporate land-use inventory, which lacks on-the-ground nuance. That being said, both charts show that black ash are rarely found in recently disturbed sites, often ground in better health and greater numbers in slightly older forests.

While there are some interesting patterns emerging, this analysis would benefit from better field data, for instance coring specimen trees to improve age category accuracy.





Black Ash Restoration

Black Ash Plantings Along Wooded Riparian Area

Black ash restoration plantings, from stock grown at PEI's Provincial Tree Nursery, were a major component of the 2023 season. Over the previous field seasons, suitable sites and habitats were recorded, creating a list of potential restoration locations. These sites were chosen based on a number of considerations:

- Island-Wide Distribution across counties, watersheds, habitats and land stewards
- Both establishing new populations as well as enhancing existing populations
- Areas with public access for future educational opportunities and easier monitoring
- Areas far from foot traffic and under some kind of protection to prevent future ecological disturbances
- Opportunities for community involvement of local volunteers, schools, municipalities and conservation groups.
- Planting a large enough number of black ash specimens to improve the probabilities of cohort diversity of gender, flowering and seeding.
- Testing micro-site conditions during plantings to attempt to learn more about specimen placement and specific botanical tolerances.

These plantings have also generated substantial public interest and press coverage, as shown by the photos to the right. The first planting of the 2023 season was a partnership between classes from Charlottetown Rural High School, Ellen's Creek Watershed, INT, City of Charlottetown and other FLPP Members.

Why planting black ash trees is so important for P.E.I. and the Mi'kmaq

'It gives me hope that there's a future for our black ash here in the Atlantic region'

Nicola MacLeod · CBC News · Posted: Jun 08, 2023 6:00 AM ADT | Last Updated: June 8, 2023

CBC Coverage of Hermitage Creek Planting

The trees planted in the Hermitage Creek by Charlottetown Rural students were raised in a partnership

Islanders planting Black ash

Abegweit First Nation, a Mi'kmaw band on Prince Edward Island (Epekwitk), is working to re-establish Black ash across the province, for the sake of this species' ecological value and its cultural importance as a material for traditional basketry. *Fraxinus nigra* (Wisqoq in Mi'kmaw) is the only tree species in P.E.I. registered as "threatened" by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

One of the partners in this effort is the Macphail Woods Ecological Forestry Project, a charitable organization devoted to protecting and restoring natural spaces, based in Orwell, P.E.I. Daniel McRae, a researcher and environmental educator with the group, has played a key role in identifying suitable sites.

"The project has been running for 2 1/2 years, and basically we started with doing surveying to figure out where there are Black ash trees growing," says McRae. "Then we collected data on

got hemlock and Sugar maple and beech and Red oak – kind of dry upland areas. As long as you've got water, it'll find a way. We found some in really interesting spots that really push where it can grow more than we thought."

The strategy is to boost Black ash numbers at verified sites, and also establish new populations in locations that seem to hold promise. "It's an Island-wide approach. We've got about 1,400 trees to plant, give or take, so we're trying to do groups of 40 to 60," says McRae, noting that the Macphail Woods nursery obtained seedlings and grew them out a bit. "We don't like planting plugs; we find their success rate is so low.

We like to do larger specimens that are a bit more robust and will settle in a little faster – so for us it's pretty normal to be planting this one-to-three-foot size."

It is hoped that at some sites the trees will not just take root, but thrive and reproduce. "The ones I find

never look good and

Atlantic Forestry Magazine Coverage of Restoration Work

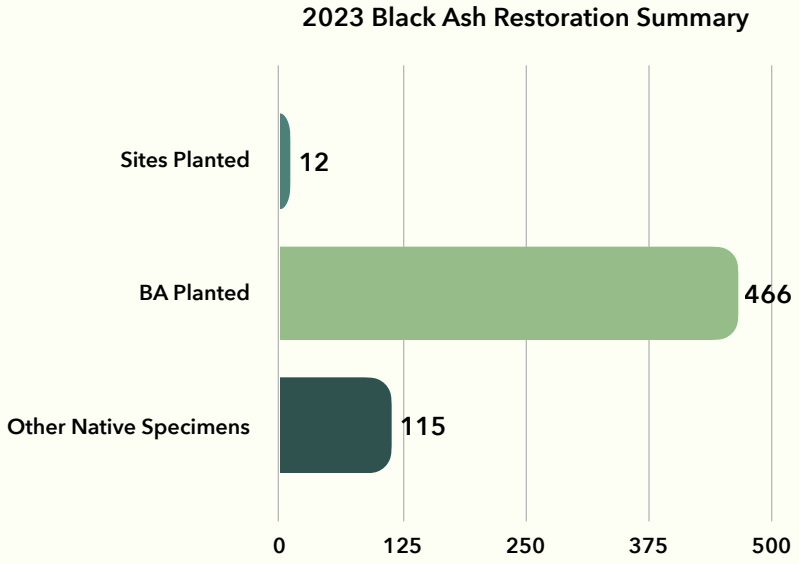
BLACK ASH RESTORATION

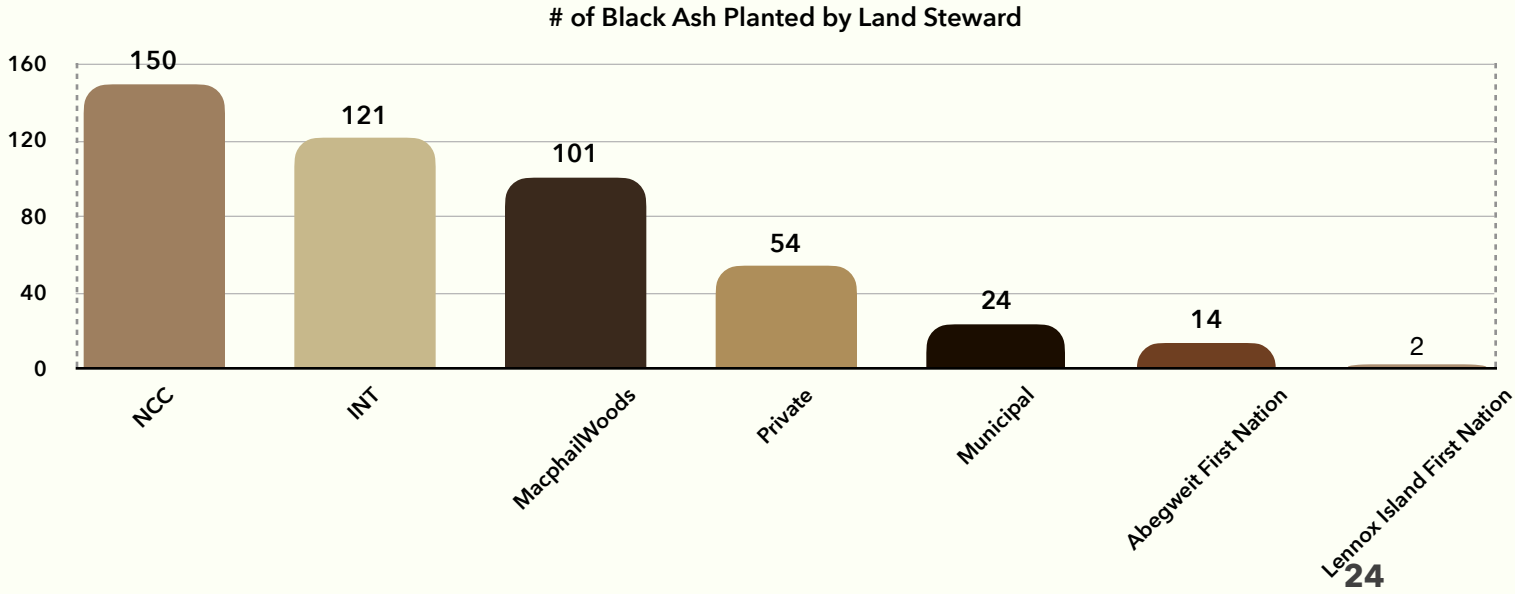

Black Ash Restoration after Post-Tropic Storm Fiona

All black ash restoration plantings were led by Michael Speelman from the Macphail Woods Ecological Forestry Project, although they often included staff and volunteers from other FLPP member groups.

Over the course of the 2023 season, 12 sites were planted with 466 black ash specimens, mostly ranging from 1 to 2 feet. Whenever funding was available, other native companion species were added, although this was primarily located at Hermitage Creek in Charlottetown.

All specimens were geo-referenced with high-accuracy and will be monitored as part of the on-going project.





Provincial Biodiversity

Lake Sedge, *Carex lacustris* - S5

As demonstrated in the Provincial site analysis, Island black ash are found growing in a variety of wetland habitats, many of which show little evidence of farming. This Island-wide and diverse distribution results in black ash habitats being home to many other unique, interesting and rare native species.

Many of the sites visited were swampy woodlands populated by typical water-tolerant native trees such as American mountain ash, black spruce and red maple. Other wooded sites have a much less common array of tree species such as American elm, white ash and eastern white cedar.

The understory of these sites are often densely vegetated with ferns, wetland wildflowers, shrubs and an incredible diversity of non-vascular species. Some of the shrubs found include alder-leaved buckthorn, mountain-fly honeysuckle, poison ivy, red-osier dogwood, *Rosa nitida*, alders, witch-hazel, hobblebush and both native hollies.

The ferns & non-vascular community are of particularly interest across these sites. Ferns such as royal fern, Christmas fern and many others have been located during fieldwork. There has also been a large number of lichens, mosses and liverworts found, including many rare and unconfirmed species.

Showy Lady's Slipper - *Cypripedium reginae* - S2S3

Wall Scalewort, *Porella platyphylla* - SU

Biodiversity Data

Herb Robert - *Geranium robertianum* - S4

Biodiversity data for each site was collected during fieldwork between December 2022 and March 2024.

A number of field tools were used to aid in species identification.

1) Fieldguides
2) 2 botanical loupes (10x & 20x magnification)
3) A portable digital microscope
4) A field tablet for photography
5) GPS for recording species location

Species identification was confirmed in one of three ways:

1) Identification by survey team in the field.
2) Identification through consultation with staff of the ACCDC.
3) Identification through crowd-sourcing help on the website/app, INaturalist.

Maryland Sanicle - *Sanicula marilandica* - S3S4

Partridgeberry - *Mitchella repens* - S2S3

OBSERVER BIAS

The field team acknowledges a number of biases in the collected data. The lead botanist's background in predominantly in dryer habitats, leading to an improving learning curve throughout the project. Sites visited at later dates generally have larger more comprehensive species lists. Seasonal surveying also led to a number of missed species with some sites surveyed outside the growing season. Difficult terrain also led to limitation in species surveying. At some sites, black ash were found late in the day leaving little time for data collection.

Provincial Conservation Ranks


Marsh Blue Violet - *Viola cuculatta - S5*

The **Atlantic Canada Conservation Data Centre (AC CDC)** in Sackville, N.B. continues to be a great asset throughout the region for determining whether or not a plant is native and its rarity. They have a ranking system on their excellent web site (accdc.com) for plants found in each individual province (S1 to S5).

The **AC CDC** rankings for our Provincial plants are:

S1 - Critically Imperiled:
Critically imperiled in the province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province.

S2 - Imperiled:
Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.

S3 - Vulnerable:
Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S4 - Apparently Secure:
Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S5 - Secure:
Common, widespread, and abundant in the province.

SU/Unknown - Unrankable -
Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

Website: http://www.accdc.com/index.html

Provincial Biodiversity: Summary

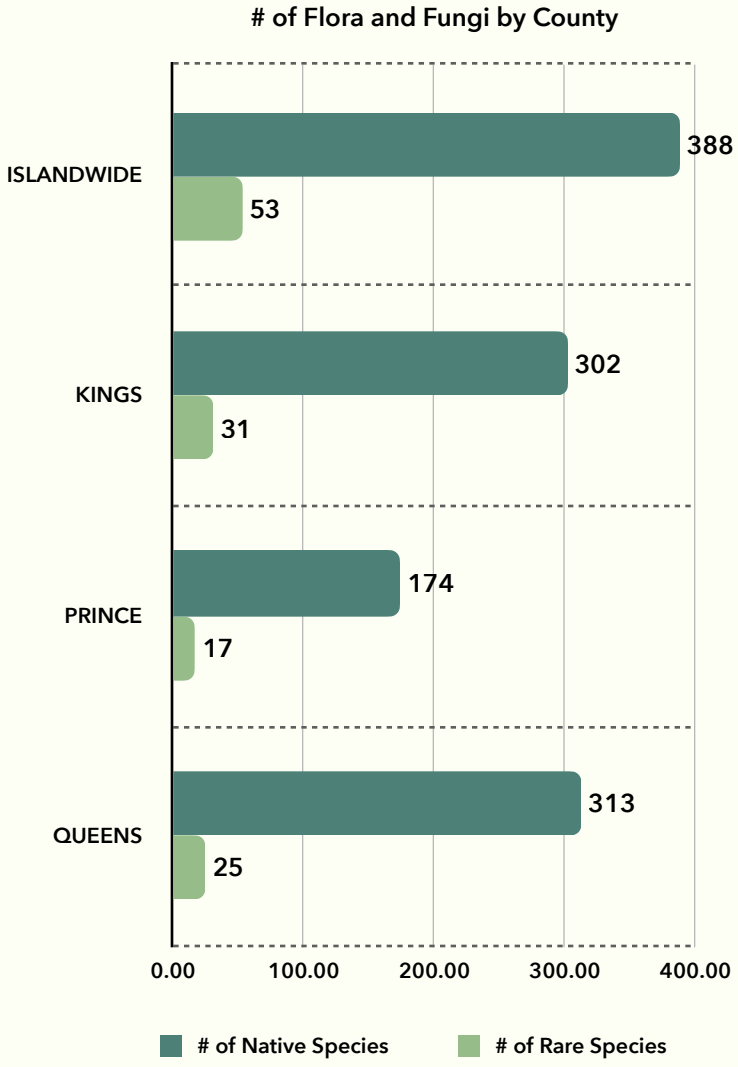
American Witch-hazel, *Hamamelis virginiana, S1*

Throughout this project, a large number of sites and habitats have been surveyed across the province while looking for black ash. While not a direct goal of the project, specimen data has been collected for native species of flora and fungi as part of fieldwork.

As mentioned, black ash tend to prefer wet habitats, often found in places spared from the plow and/or with less historic human-caused disturbances. Both of these factors are often linked with increased native biodiversity as well as higher average numbers of rare species.

The chart to the right showcases the total number of native flora and fungi species found during field surveys by county.

It should be noted that Prince County has been the least surveyed part of the Island, explaining its lower average numbers. Kings county sites tended to be less disturbed on average, possibly explaining it higher rate of rare species. Queens county wetlands and riparian areas were generally much smaller, often abutted by agricultural land.

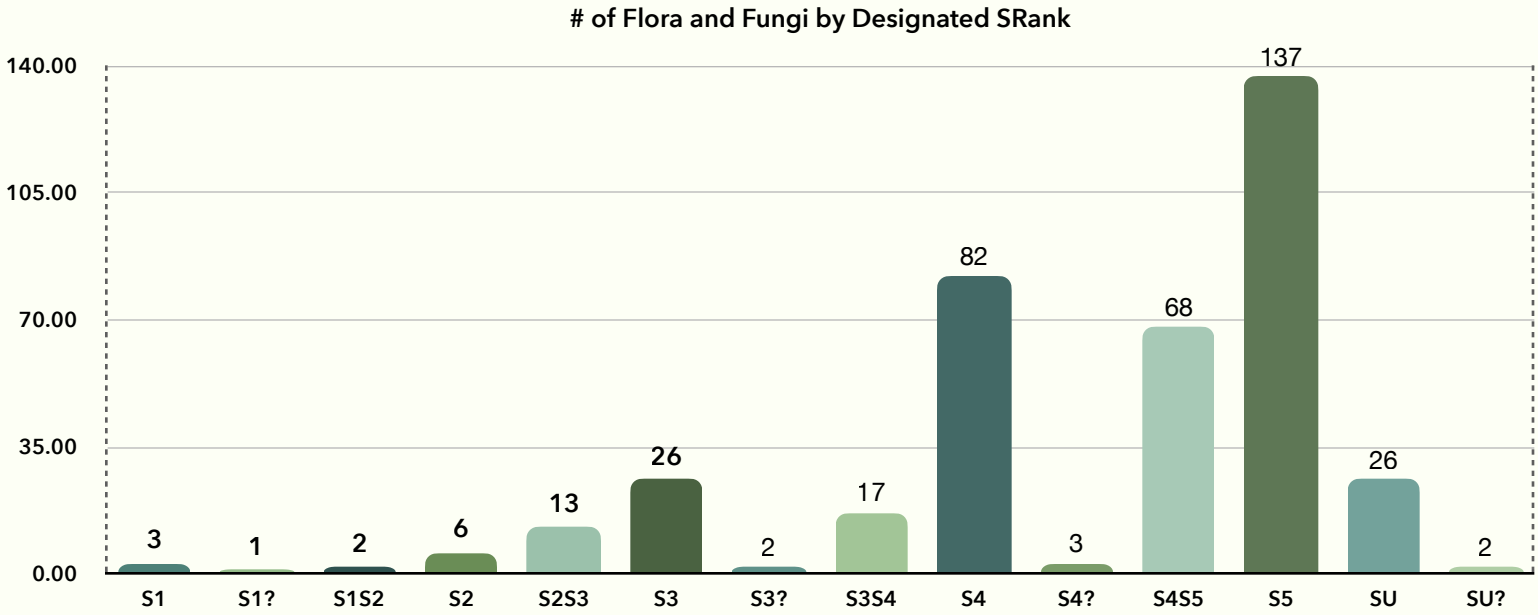


Provincial Biodiversity: Rare Species

The graph below showcases the number of rare species across all sites by their designated provincial Status Rank (SRank), as determined by the ACCDC. While this chart does not include frequency metrics, it still showcases the amazing diversity of species that have been found across these wet habitats.

For instance, over 50 unique rare species, S3 and rarer, were documented during black ash surveys. It is also interesting to note the many species that are designated as Status Unknown (SU), which are often non-vascular or fungi species, most likely native but without adequate enough records for an official status rank. Some species such as the epiphytic moss, *Homalia trichomanoides*, was found at several sites, which is a species without official sightings for over a decade.

During the course of fieldwork, seeds and berries have been collected from a variety of these rare and important species for propagation trials at the Macphail Woods Native Plant Nursery. Species such as mountain-fly honeysuckle, alder-leaved buckthorn, swamp red currant and others are currently being propagated.



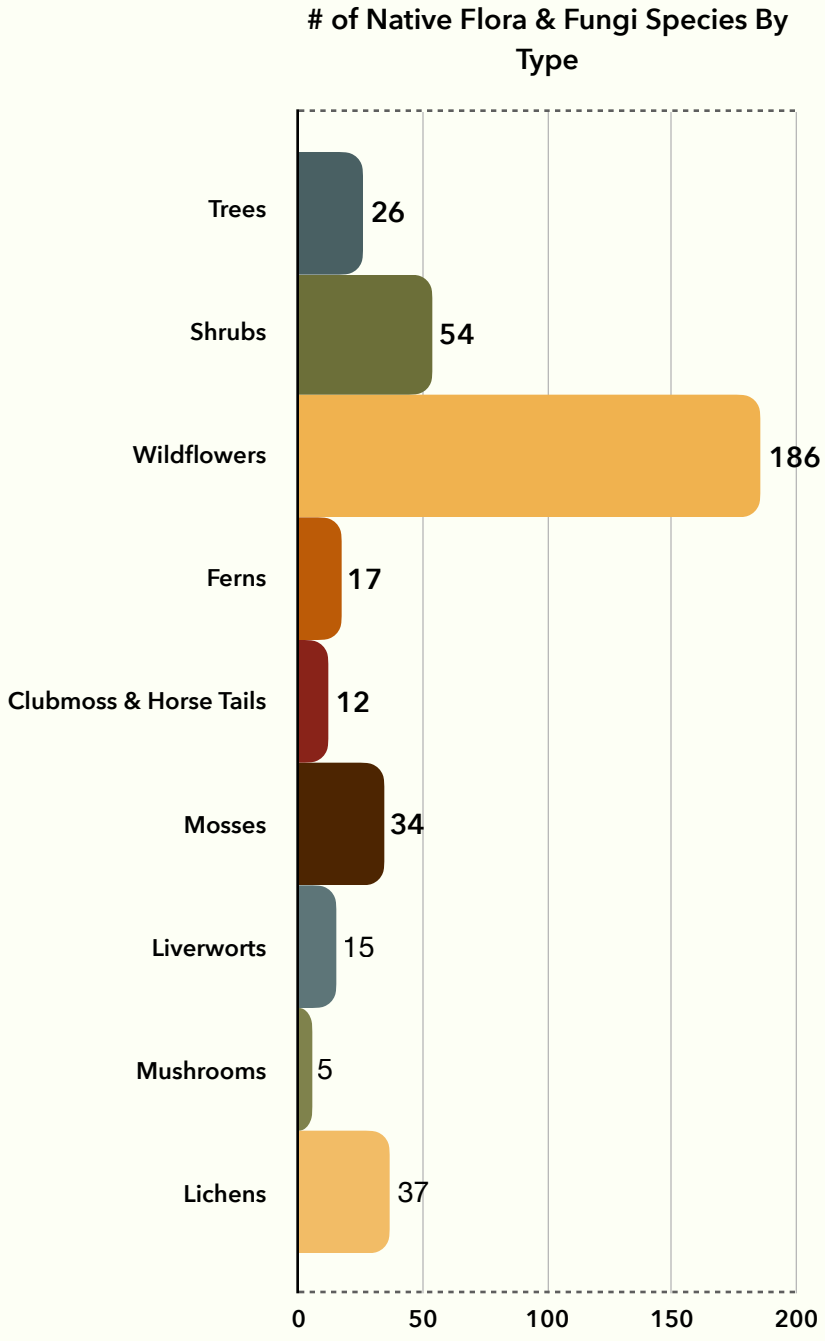
Provincial Biodiversity: Types

As has been shown, a large diversity of native species can be found growing in wet habitats along with black ash. These forested areas with ample ground-water availability allow native vegetation to grow prolifically, often resulting in a tangle of various growth forms, styles and types. Unlike mono-cultured old field white spruce forests, black ash habitats often have well-developed forest canopy strata.

Water-tolerant ferns and wildflowers grow prolifically creating a healthy strata of ground-cover. A large diversity of shrubs grow in the shrub layer depending on local soil water, sunlight and wind exposure. Many species such as American mountain ash and black ash can grow extremely well as an understory species, even with nearby hemlock and red maple towering above.

The chart to the right showcases the number of unique species surveyed by their growth type. While deeper analysis would be needed to truly understand these complex structural interactions, this graph still showcase the high diversity of both form and species found across many black ash sites.

Almost all of our native species of trees can be found growing with black ash, although some species are exceedingly rare. There are a large number of wetland specialist native wildlife species which find many niche locations to thrive where black ash grow.



Associated Species


Mountain Fly Honeysuckle - *Lonicera villosa* - S4

COMPANION SPECIES

By examining the number of occurrences of each species by site where black ash were found, we should be able to determine native companion species that share growing condition preferences with black ash. This information can be used in conjunction with Provincial species and habitat distribution records to find likely sites for unrecorded black ash populations.

When in the field, the survey team used these companion species for locating black ash, especially at new sites or where the historic location data was highly inaccurate. As these associated species becomes more prolific, black ash are often much more likely to be found, most likely due to similar tolerances of local conditions or land-use histories.

While the data presented below does begin reveal ecological community connections amongst native species and the black ash tree, there are still the gaps and discrepancies in the biodiversity data that need to be taken into account. As the project continues, this data will become more robust. To date, more *swampy woods* habitats have been surveyed with black ash than any other type, leaving a bias in the lists below towards species with those habitat preferences.

Although there is still much to learn, the following lists are also helpful in future restoration and native species propagation planning.


White Elm - *Ulmus americana* - S3


Eastern Marsh Fern Thelypteris palustris - S4S5

SPECIES LIST

Habitat:	Wooded Swamp
# of Sites	28

BIODIVERSITY

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
CONIFEROUS TREES	FAMILY	SCIENTIFIC NAME	SRANK	
Eastern White Cedar	*Cupressaceae*	*Thuja occidentalis*	S3S4	10.7%
Balsam Fir	*Pinaceae*	*Abies balsamea*	S5	78.6%
Tamarack	*Pinaceae*	*Larix laricina*	S5	35.7%
White Spruce	*Pinaceae*	*Picea glauca*	S5	3.6%
Black Spruce	*Pinaceae*	*Picea mariana*	S5	53.6%
Red Spruce	*Pinaceae*	*Picea rubens*	S5	10.7%
Eastern Hemlock	*Pinaceae*	*Tsuga canadensis*	S3	3.6%
DECIDUOUS TREES	FAMILY	SCIENTIFIC NAME	SRANK	
Yellow Birch	*Betulaceae*	*Betula alleghaniensis*	S5	25.0%
Paper Birch	*Betulaceae*	*Betula papyrifera*	S5	35.7%
Gray Birch	*Betulaceae*	*Betula populifolia*	S5	46.4%
White Ash	*Oleaceae*	*Fraxinus americana*	S2S3	35.7%
Pin Cherry	*Rosaceae*	*Prunus pensylvanica*	S5	7.1%
American Mountain Ash	*Rosaceae*	*Sorbus americana*	S5	28.6%
Trembling Aspen	*Salicaceae*	*Populus tremuloides*	S5	28.6%
Striped Maple	*Sapindaceae*	*Acer pensylvanicum*	S5	10.7%
Red Maple	*Sapindaceae*	*Acer rubrum*	S5	75.0%
Sugar Maple	*Sapindaceae*	*Acer saccharum*	S4	3.6%
White Elm	*Ulmaceae*	*Ulmus americana*	S3	67.9%
SHRUBS	FAMILY	SCIENTIFIC NAME	SRANK	
Skunk Currant	*Grossulariaceae*	*Ribes glandulosum*	S5	10.7%
Smooth Gooseberry	*Grossulariaceae*	*Ribes hirtellum*	S5	21.4%
Bristly Black Currant	*Grossulariaceae*	*Ribes lacustre*	S5	21.4%
Swamp Red Currant	*Grossulariaceae*	*Ribes triste*	S3S4	28.6%
Alleghaney Blackberry	*Rosaceae*	*Rubus allegheniensis*	S4S5	10.7%
Smooth Blackberry	*Rosaceae*	*Rubus canadensis*	S5	3.6%
Bristly Dewberry	*Rosaceae*	*Rubus hispidus*	S4	32.1%
Red Raspberry	*Rosaceae*	*Rubus idaeus*	S5	60.7%
Dwarf Red Raspberry	*Rosaceae*	*Rubus pubescens*	S5	50.0%
Canada Yew	*Taxaceae*	*Taxus canadensis*	S4	75.0%
Mountain Holly	*Aquifoliaceae*	*Ilex mucronata*	S5	42.9%
Common Winterberry	*Aquifoliaceae*	*Ilex verticillata*	S5	28.6%
Green Alder	*Betulaceae*	*Alnus alnobetula*	S4S5	3.6%
Speckled Alder	*Betulaceae*	*Alnus incana*	S5	64.3%
Bog Birch	*Betulaceae*	*Betula pumila*	S3	71.4%

Associated Species: Wooded Swamps

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
Beaked Hazel	*Betulaceae*	*Corylus cornuta*	S5	32.1%
Canada Fly Honeysuckle	*Caprifoliaceae*	*Lonicera canadensis*	S5	21.4%
Mountain Fly Honeysuckle	*Caprifoliaceae*	*Lonicera villosa*	S4	39.3%
Alternate-leaved Dogwood	*Cornaceae*	*Cornus alternifolia*	S4	7.1%
Red Osier Dogwood	*Cornaceae*	*Cornus sericea*	S5	50.0%
Sweet-fern	*Myricaceae*	*Comptonia peregrina*	S4	3.6%
Sweet Gale	*Myricaceae*	*Myrica gale*	S5	3.6%
alder-leaved buckthorn	*Rhamnaceae*	*Endotropis alnifolia*	S3S4	110.7%
Serviceberry	*Rosaceae*	*Amelanchier sp*	N/A	28.6%
Black Chokeberry	*Rosaceae*	*Aronia melanocarpa*	S4S5	3.6%
Aronia sp	*Rosaceae*	*Aronia sp*	N/A	3.6%
Chokecherry	*Rosaceae*	*Prunus virginiana*	S5	10.7%
Shining Rose	*Rosaceae*	*Rosa nitida*	S4	39.3%
Virginia Rose	*Rosaceae*	*Rosa virginiana*	S5	3.6%
White Meadowsweet	*Rosaceae*	*Spiraea alba*	S5	17.9%
Steeplebush	*Rosaceae*	*Spiraea tomentosa*	S4	14.3%
Willow	*Salicaceae*	*Salix spp.*	N/A	25.0%
Mountain Maple	*Sapindaceae*	*Acer spicatum*	S5	25.0%
Common Elderberry	*Viburnaceae*	*Sambucus canadensis*	S4S5	28.6%
Red Elderberry	*Viburnaceae*	*Sambucus racemosa*	S5	14.3%
Northern Wild Raisin	*Viburnaceae*	*Viburnum cassinoides*	S5	35.7%
Highbush Cranberry	*Viburnaceae*	*Viburnum opulus*	S3	17.9%
Leatherleaf	*Ericaceae*	*Chamaedaphne calyculata*	S4	7.1%
Black Huckleberry	*Ericaceae*	*Gaylussacia baccata*	S4S5	7.1%
Sheep Laurel	*Ericaceae*	*Kalmia angustifolia*	S5	39.3%
Rhodora	*Ericaceae*	*Rhododendron canadense*	S5	10.7%
Common Labrador Tea	*Ericaceae*	*Rhododendron groenlandicum*	S5	17.9%
Late Lowbush Blueberry	*Ericaceae*	*Vaccinium angustifolium*	S5	28.6%
Velvet-leaved Blueberry	*Ericaceae*	*Vaccinium myrtilloides*	S4S5	14.3%
Western Poison Ivy	*Anacardiaceae*	*Toxicodendron radicans var. rydbergii*	S4	42.9%
Virginia Clematis	*Ranunculaceae*	*Clematis virginiana*	S4	3.6%
NON-NATIVE TREES	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
English Oak	*Fagaceae*	*Quercus robur*	SNA	3.6%
European Mountain Ash	*Rosaceae*	*Sorbus aucuparia*	SNA	10.7%
WILDFLOWERS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Turion Duckweed	*Araceae*	*Lemna turionifera*	S4S5	7.1%
Floating-leaved Pondweed	*Potamogetonaceae*	*Potamogeton natans*	S4	7.1%
Green-fruited Burreed	*Typhaceae*	*Sparganium emersum*	S4S5	7.1%
Small Burreed	*Typhaceae*	*Sparganium natans*	S3	3.6%
Broad-leaved Cattail	*Typhaceae*	*Typha latifolia*	S5	28.6%

Associated Species: Wooded Swamps

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
Trailing Arbutus	*Ericaceae*	*Epigaea repens*	S4	7.1%
Creeping Snowberry	*Ericaceae*	*Gaultheria hispidula*	S5	39.3%
Eastern Teaberry	*Ericaceae*	*Gaultheria procumbens*	S4S5	10.7%
Convulsion-Root	*Ericaceae*	*Monotropa uniflora*	S5	3.6%
One-flowered Wintergreen	*Ericaceae*	*Moneses uniflora*	S3	14.3%
One-sided Wintergreen	*Ericaceae*	*Orthilia secunda*	S4S5	21.4%
Round-leaved Pyrola	*Ericaceae*	*Pyrola americana*	S4	10.7%
Shinleaf	*Ericaceae*	*Pyrola elliptica*	S5	7.1%
Helleborine	*Orchidaceae*	*Epipactis helleborine*	SNA	25.0%
Early Coralroot	*Orchidaceae*	*Corallorhiza trifida*	S2S3	3.6%
Showy Lady's-Slipper	*Orchidaceae*	*Cypripedium reginae*	S2S3	32.1%
White Fringed Orchid	*Orchidaceae*	*Platanthera blephariglottis*	S3S4	3.6%
Club Spur Orchid	*Orchidaceae*	*Platanthera clavellata*	S3S4	14.3%
White Bog Orchid	*Orchidaceae*	*Platanthera dilatata*	S3	7.1%
Small Purple Fringed Orchid	*Orchidaceae*	*Platanthera psycodes*	S4	21.4%
Dodder	Convolvulaceae	*Cuscuta sp.*	S?	3.6%
White Sea-blite	*Amaranthaceae*	*Suaeda maritima*	S4S5	3.6%
Scotch Lovage	*Apiaceae*	*Ligusticum scoticum*	S4	3.6%
Beach Wormwood	*Asteraceae*	*Artemisia stelleriana*	SNA	3.6%
Blunt-leaved Sandwort	*Caryophyllaceae*	*Moehringia lateriflora*	S5	7.1%
Canada Germander	*Lamiaceae*	*Teucrium canadense*	S3S4	3.6%
Prairie Cordgrass	*Poaceae*	*Sporobolus michauxianus*	S5	3.6%
Tierra del Fuego Dock	*Polygonaceae*	*Rumex fueginus*	S4	3.6%
Sea Milkwort	*Primulaceae*	*Lysimachia maritima*	S4S5	3.6%
Queen Anne's Lace	*Apiaceae*	*Daucus carota*	SNA	3.6%
Grass-leaved Goldenrod	*Asteraceae*	*Euthamia graminifolia*	S5	3.6%
Tall Blue Lettuce	*Asteraceae*	*Lactuca biennis*	S5	10.7%
Canada Goldenrod	*Asteraceae*	*Solidago canadensis*	S5	28.6%
Rough-stemmed Goldenrod	*Asteraceae*	*Solidago rugosa*	S5	42.9%
Common Dandelion	*Asteraceae*	*Taraxacum officinale*	SNA	10.7%
Coltsfoot	*Asteraceae*	*Tussilago farfara*	SNA	3.6%
Common Self-heal	*Lamiaceae*	*Prunella vulgaris*	S5	7.1%
Common Eyebright	*Orobanchaceae*	*Euphrasia nemorosa*	SNA	3.6%
Fringed Black Bindweed	*Polygonaceae*	*Fallopia cilinodis*	S4	3.6%
Curled Dock	*Polygonaceae*	*Rumex crispus*	SNA	3.6%
Kidney-Leaved Buttercup	*Ranunculaceae*	*Ranunculus abortivus*	S4	3.6%
Rough Cinquefoil	*Rosaceae*	*Potentilla norvegica*	S4S5	7.1%
Pink Lady's-Slipper	*Orchidaceae*	*Cypripedium acaule*	S5	14.3%
Maryland Sanicle	*Apiaceae*	*Sanicula marilandica*	S3S4	3.6%

Associated Species: Wooded Swamps

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
Woodland Angelica	*Apiaceae*	*Angelica sylvestris*	SNA	10.7%
Jack-in-the-pulpit	*Araceae*	*Arisaema triphyllum*	S4	7.1%
Wild Sarsaparilla	*Araliaceae*	*Aralia nudicaulis*	S5	35.7%
Wild Lily-of-The-Valley	*Asparagaceae*	*Maianthemum canadense*	S5	25.0%
Tall Rattlesnakeroot	*Asteraceae*	*Nabalus altissimus*	S4	7.1%
Three-leaved Rattlesnakeroot	*Asteraceae*	*Nabalus trifoliolatus*	S5	25.0%
Whorled Wood Aster	*Asteraceae*	*Oclemena acuminata*	S5	17.9%
Hairy Flat-top White Aster	*Asteraceae*	*Doellingeria umbellata*	S5	21.4%
Aster spp.	*Asteraceae*	*Symphyotrichum sp*	N/A	14.3%
Boreal Aster	*Asteraceae*	*Symphyotrichum boreale*	S3	3.6%
Calico Aster	*Asteraceae*	*Symphyotrichum lateriflorum*	S5	14.3%
Twinflower	*Caprifoliaceae*	*Linnaea borealis*	S5	35.7%
Bunchberry	*Cornaceae*	*Cornus canadensis*	S5	39.3%
Common Hemp-nettle	*Lamiaceae*	*Galeopsis tetrahit*	SNA	10.7%
Yellow Bluebead Lily	*Liliaceae*	*Clintonia borealis*	S5	17.9%
Painted Trillium	*Melanthiaceae*	*Trillidium undulatum*	S5	10.7%
Nodding Trillium	*Melanthiaceae*	*Trillium cernuum*	S4	14.3%
Fireweed	*Onagraceae*	*Chamaenerion angustifolium*	S5	7.1%
Small Enchanter's Nightshade	*Onagraceae*	*Circaea alpina*	S5	14.3%
Broad-leaved Enchanter's Nightshade	*Onagraceae*	*Circaea canadensis*	S2S3	7.1%
European Wood Sorrel	*Oxalidaceae*	*Oxalis stricta*	S5	3.6%
Northern Starflower	*Primulaceae*	*Lysimachia borealis*	S5	32.1%
Red Baneberry	*Ranunculaceae*	*Actaea rubra*	S4	7.1%
Goldthread	*Ranunculaceae*	*Coptis trifolia*	S5	21.4%
Creeping Buttercup	*Ranunculaceae*	*Ranunculus repens*	SNA	42.9%
Woodland Agrimony	*Rosaceae*	*Agrimonia striata*	S4	17.9%
Hooked Agrimony	*Rosaceae*	*Agrimonia gryposepala*	S3	3.6%
Bittersweet Nightshade	*Solanaceae*	*Solanum dulcamara*	SNA	21.4%
Broad-leaved Arrowhead	*Alismataceae*	*Sagittaria latifolia*	S4	3.6%
Purple-stemmed Angelica	*Apiaceae*	*Angelica atropurpurea*	S3	3.6%
Bulbous Water-hemlock	*Apiaceae*	*Cicuta bulbifera*	S4S5	3.6%
Common Water Parsnip	*Apiaceae*	*Sium suave*	S5	28.6%
Wild Calla	*Araceae*	*Calla palustris*	S4	28.6%
Three-leaved False Soloman's Seal	*Asparagaceae*	*Maianthemum trifolium*	S4	39.3%
Purple-stemmed Beggarticks	*Asteraceae*	*Bidens connata*	S4	7.1%
Spotted Joe Pye Weed	*Asteraceae*	*Eutrochium maculatum*	S5	28.6%
Northern Bog Goldenrod	*Asteraceae*	*Solidago uliginosa*	S4	10.7%
Purple-stemmed Aster	*Asteraceae*	*Symphyotrichum puniceum*	S5	42.9%
Spotted Jewelweed	*Balsaminaceae*	*Impatiens capensis*	S5	42.9%

Associated Species: Wooded Swamps

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
Small Forget-Me-Not	*Boraginaceae*	*Myosotis laxa*	S4	14.3%
Pennsylvania Bittercress	*Brassicaceae*	*Cardamine pensylvanica*	S4S5	14.3%
Round-leaved Sundew	*Droseraceae*	*Drosera rotundifolia*	S4	14.3%
Large Cranberry	*Ericaceae*	*Vaccinium macrocarpon*	S4S5	3.6%
Small Cranberry	*Ericaceae*	*Vaccinium oxycoccos*	S4	3.6%
Fraser's St. John's-wort	*Hypericaceae*	*Hypericum fraseri*	S5	14.3%
Harlequin Blue Flag	*Iridaceae*	*Iris versicolor*	S5	21.4%
American Water Horehound	*Lamiaceae*	*Lycopus americanus*	S4S5	14.3%
Northern Water Horehound	*Lamiaceae*	*Lycopus uniflorus*	S5	7.1%
Marsh Skullcap	*Lamiaceae*	*Scutellaria galericulata*	S4S5	10.7%
Mad-dog Skullcap	*Lamiaceae*	*Scutellaria lateriflora*	S5	3.6%
Purple Loosestrife	*Lythraceae*	*Lythrum salicaria*	SNA	3.6%
Bog Buckbean	*Menyanthaceae*	*Menyanthes trifoliata*	S4	10.7%
Willherb spp.	*Onagraceae*	*Epilobium sp*	N/A	3.6%
Northern Willowherb	*Onagraceae*	*Epilobium ciliatum*	S5	14.3%
Bog Willowherb	*Onagraceae*	*Epilobium leptophyllum*	S4S5	10.7%
Marsh Water-starwort	*Plantaginaceae*	*Callitriche palustris*	S4	28.6%
White Turtlehead	*Plantaginaceae*	*Chelone glabra*	S5	17.9%
American Speedwell	*Plantaginaceae*	*Veronica americana*	S4	25.0%
Halberd-leaved Tearthumb	*Polygonaceae*	*Persicaria arifolia*	S3	14.3%
Arrow-leaved Smartweed	*Polygonaceae*	*Persicaria sagittata*	S5	10.7%
Greater Water Dock	*Polygonaceae*	*Rumex britannica*	S5	14.3%
Swamp Yellow Loosestrife	*Primulaceae*	*Lysimachia terrestris*	S4S5	3.6%
Yellow Marsh Marigold	*Ranunculaceae*	*Caltha palustris*	S4S5	53.6%
Gmelin's Water Buttercup	*Ranunculaceae*	*Ranunculus gmelinii*	S4	14.3%
Tall Meadow-Rue	*Ranunculaceae*	*Thalictrum pubescens*	S5	14.3%
Marsh Cinquefoil	*Rosaceae*	*Comarum palustre*	S4	7.1%
Avens	*Rosaceae*	*Geum sp*	N/A	14.3%
Rough Avens	*Rosaceae*	*Geum laciniatum*	S4	7.1%
Water Avens	*Rosaceae*	*Geum rivale*	S4	7.1%
Rough Bedstraw	*Rubiaceae*	*Galium asprellum*	S4S5	14.3%
Common Marsh Bedstraw	*Rubiaceae*	*Galium palustre*	S5	42.9%
Dyer's Bedstraw	*Rubiaceae*	*Galium tinctorium*	S4	3.6%
Three-petaled Bedstraw	*Rubiaceae*	*Galium trifidum*	S4S5	10.7%
Three-flowered Bedstraw	*Rubiaceae*	*Galium triflorum*	S5	10.7%
American Golden Saxifrage	*Saxifragaceae*	*Chrysosplenium americanum*	S4	25.0%
Naked Bishop's-Cap	*Saxifragaceae*	*Mitella nuda*	S4	28.6%
Dwarf Clearweed	*Urticaceae*	*Pilea pumila*	S4	7.1%
Stinging Nettle	*Urticaceae*	*Urtica dioica ssp. gracilis*	S4	10.7%

Associated Species: Wooded Swamps

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
Small Forget-Me-Not	*Boraginaceae*	*Myosotis laxa*	S4	14.3%
Pennsylvania Bittercress	*Brassicaceae*	*Cardamine pensylvanica*	S4S5	14.3%
Round-leaved Sundew	*Droseraceae*	*Drosera rotundifolia*	S4	14.3%
Large Cranberry	*Ericaceae*	*Vaccinium macrocarpon*	S4S5	3.6%
Small Cranberry	*Ericaceae*	*Vaccinium oxycoccos*	S4	3.6%
Fraser's St. John's-wort	*Hypericaceae*	*Hypericum fraseri*	S5	14.3%
Harlequin Blue Flag	*Iridaceae*	*Iris versicolor*	S5	21.4%
American Water Horehound	*Lamiaceae*	*Lycopus americanus*	S4S5	14.3%
Northern Water Horehound	*Lamiaceae*	*Lycopus uniflorus*	S5	7.1%
Marsh Skullcap	*Lamiaceae*	*Scutellaria galericulata*	S4S5	10.7%
Mad-dog Skullcap	*Lamiaceae*	*Scutellaria lateriflora*	S5	3.6%
Purple Loosestrife	*Lythraceae*	*Lythrum salicaria*	SNA	3.6%
Bog Buckbean	*Menyanthaceae*	*Menyanthes trifoliata*	S4	10.7%
Willherb spp.	*Onagraceae*	*Epilobium sp*	N/A	3.6%
Northern Willowherb	*Onagraceae*	*Epilobium ciliatum*	S5	14.3%
Bog Willowherb	*Onagraceae*	*Epilobium leptophyllum*	S4S5	10.7%
Marsh Water-starwort	*Plantaginaceae*	*Callitriche palustris*	S4	28.6%
White Turtlehead	*Plantaginaceae*	*Chelone glabra*	S5	17.9%
American Speedwell	*Plantaginaceae*	*Veronica americana*	S4	25.0%
Halberd-leaved Tearthumb	*Polygonaceae*	*Persicaria arifolia*	S3	14.3%
Arrow-leaved Smartweed	*Polygonaceae*	*Persicaria sagittata*	S5	10.7%
Greater Water Dock	*Polygonaceae*	*Rumex britannica*	S5	14.3%
Swamp Yellow Loosestrife	*Primulaceae*	*Lysimachia terrestris*	S4S5	3.6%
Yellow Marsh Marigold	*Ranunculaceae*	*Caltha palustris*	S4S5	53.6%
Gmelin's Water Buttercup	*Ranunculaceae*	*Ranunculus gmelinii*	S4	14.3%
Tall Meadow-Rue	*Ranunculaceae*	*Thalictrum pubescens*	S5	14.3%
Marsh Cinquefoil	*Rosaceae*	*Comarum palustre*	S4	7.1%
Avens	*Rosaceae*	*Geum sp*	N/A	14.3%
Rough Avens	*Rosaceae*	*Geum laciniatum*	S4	7.1%
Water Avens	*Rosaceae*	*Geum rivale*	S4	7.1%
Rough Bedstraw	*Rubiaceae*	*Galium asprellum*	S4S5	14.3%
Common Marsh Bedstraw	*Rubiaceae*	*Galium palustre*	S5	42.9%
Dyer's Bedstraw	*Rubiaceae*	*Galium tinctorium*	S4	3.6%
Three-petaled Bedstraw	*Rubiaceae*	*Galium trifidum*	S4S5	10.7%
Three-flowered Bedstraw	*Rubiaceae*	*Galium triflorum*	S5	10.7%
American Golden Saxifrage	*Saxifragaceae*	*Chrysosplenium americanum*	S4	25.0%
Naked Bishop's-Cap	*Saxifragaceae*	*Mitella nuda*	S4	28.6%
Dwarf Clearweed	*Urticaceae*	*Pilea pumila*	S4	7.1%
Stinging Nettle	*Urticaceae*	*Urtica dioica ssp. gracilis*	S4	10.7%

Associated Species: Wooded Swamps

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
Marsh Blue Violet	*Violaceae*	*Viola cucullata*	S5	7.1%
Small White Violet	*Violaceae*	*Viola macloskeyi*	S5	10.7%
Wild Strawberry	*Rosaceae*	*Fragaria virginiana*	S5	35.7%
FERNS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Common Lady Fern	*Athyriaceae*	*Athyrium filix-femina*	S5	39.3%
Common Oak Fern	*Cystopteridaceae*	*Gymnocarpium dryopteris*	S5	17.9%
Bracken Fern	*Dennstaedtiaceae*	*Pteridium aquilinum*	S5	25.0%
Mountain Wood Fern	*Dryopteridaceae*	*Dryopteris campyloptera*	S4	14.3%
Spinulose Wood Fern	*Dryopteridaceae*	*Dryopteris carthusiana*	S4S5	21.4%
Crested Wood Fern	*Dryopteridaceae*	*Dryopteris cristata*	S5	42.9%
Evergreen Wood Fern	*Dryopteridaceae*	*Dryopteris intermedia*	S5	14.3%
Christmas Fern	*Dryopteridaceae*	*Polystichum acrostichoides*	S2S3	7.1%
Ostrich Fern	*Onocleaceae*	*Matteuccia struthiopteris*	S4	7.1%
Sensitive Fern	*Onocleaceae*	*Onoclea sensibilis*	S5	64.3%
Interrupted Fern	*Osmundaceae*	*Claytosmunda claytoniana*	S5	21.4%
Royal Fern	*Osmundaceae*	*Osmunda regalis*	S4	3.6%
Royal Fern	*Osmundaceae*	*Osmunda regalis var. spectabilis*	S4	3.6%
Cinnamon Fern	*Osmundaceae*	*Osmundastrum cinnamomeum*	S5	71.4%
New York Fern	*Thelypteridaceae*	*Parathelypteris noveboracensis*	S5	7.1%
Northern Beech Fern	*Thelypteridaceae*	*Phegopteris connectilis*	S5	10.7%
Eastern Marsh Fern	*Thelypteridaceae*	*Thelypteris palustris*	S4S5	39.3%
CLUBMOSSES	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Round-branched Tree-clubmoss	*Lycopodiaceae*	*Dendrolycopodium dendroideum*	S5	7.1%
Northern Bog Clubmoss	*Lycopodiaceae*	*Lycopodiella inundata*	S3	7.1%
HORSETAILS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Woodland Horsetail	*Equisetaceae*	*Equisetum sylvaticum*	S5	42.9%
MOSSES	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Squirrel-tail Moss	Leucodontaceae	*Leucodon sciuroides*	SU?	3.6%
Glow Moss	Aulacomniaceae	*Aulacomnium palustre*	S5	10.7%
Silvery Bryum Moss	Bryaceae	*Bryum argenteum*	S4S5	3.6%
Northern Tree Moss	Climaciaceae	*Climacium dendroides*	S5	39.3%
Mountain Broom Moss	Dicranaceae	*Dicranum montanum*	S5	3.6%
Common Broom Moss	Dicranaceae	*Dicranum scoparium*	S5	39.3%
Stairstep Moss	Hylocomiaceae	*Hylocomium splendens*	S5	28.6%
Electrified Cat's-tail Moss	Hylocomiaceae	*Rhytidiadelphus triquetrus*	S5	46.4%
Red-stemmed Feather Moss	Hylocomiaceae	*Pleurozium schreberi*	S5	42.9%
Pellucid Plait Moss	*Hypnaceae*	*Hypnum imponens*	S5	14.3%
Knight's Plume Moss	*Hypnaceae*	*Ptilium crista-castrensis*	S5	7.1%
White Pincushion Moss	Leucobryaceae	*Leucobryum glaucum*	SU	14.3%
Swan's-neck Leafy Moss	Mniaceae	*Mnium hornum*	S5	3.6%

Associated Species: Wooded Swamps

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
Woodsy Leafy Moss	Mniaceae	*Plagiomnium cuspidatum*	S4S5	7.1%
Appalachian Leafy Moss	Mniaceae	*Rhizomnium appalachianum*	S4S5	7.1%
Dotted Leafy Moss	Mniaceae	*Rhizomnium punctatum*	S4?	21.4%
Common Flat-branch Moss	*Neckeraceae*	*Homalia trichomanoides*	SU	14.3%
Feathery Neckera Moss	*Neckeraceae*	*Neckera pennata*	S5	14.3%
Darkgreen Bristle Moss	Orthotrichaceae	*Orthotrichum sordidum*	S5	3.6%
Crisped Pincushion Moss	Orthotrichaceae	*Ulota crispa*	S5	28.6%
Smoothcap Moss	Polytrichaceae	*Atrichum sp*	N/A	7.1%
Common Haircap Moss	Polytrichaceae	*Polytrichum commune*	S5	7.1%
Juniper Haircap Moss	Polytrichaceae	*Polytrichum juniperinum*	S4S5	3.6%
Peatmoss	*Sphagnaceae*	*Sphagnum sp*	N/A	50.0%
Compact Peat Moss	*Sphagnaceae*	*Sphagnum compactum*	S3?	3.6%
Green Peat Moss	*Sphagnaceae*	*Sphagnum girgensohnii*	S5	25.0%
Shaggy Peat Moss	Sphagnaceae	*Sphagnum squarrosum*	S5	39.3%
Delicate Fern Moss	*Thuidiaceae*	*Thuidium delicatulum*	S4S5	64.3%
LIVERWORTS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Snake Liverwort	Conocephalaceae	*Conocephalum salebrosum*	SU	3.6%
Frullania Liverwort	Jubulaceae	*Frullania sp.*	SU	53.6%
Wood Rustwort	Cephaloziaceae	*Nowellia curvifolia*	SU	3.6%
Scalewort	Jubulaceae	*Frullania sp*	N/A	7.1%
Three-lobed Whipwort	Lepidoziaceae	*Bazzania trilobata*	S5	32.1%
Variable-Leaved Crestwort	Lophocoleaceae	*Lophocolea heterophylla*	SU	10.7%
Common Pellia	Pelliaceae	*Pellia epiphylla*	SU	7.1%
Lesser Featherwort	Plagiochilaceae	*Plagiochila porelloides*	SU	14.3%
Wall Scalewort	Porellaceae	*Porella platyphylla*	SU	3.6%
	Ptilidiaceae	*Ptilidium pulcherrimum*	SU	14.3%
Flat-leaved Scalewort	Radulaceae	*Radula complanata*	SU	35.7%
Woolly Liverwort	Trichocoleaceae	*Trichocolea tomentella*	SU	46.4%
LICHENS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Buellia spp.	Physciaceae	*Buellia sp*	N/A	25.0%
Bottlebrush Shield Lichen	Parmeliaceae	*Parmelia squarrosa*	S5	46.4%
Reindeer Lichen	Cladoniaceae	*Cladonia arbuscula*	S5	3.6%
Powdered Funnel Lichen	Cladoniaceae	*Cladonia cenotea*	S4S5	3.6%
Giant Cladonia Lichen	Cladoniaceae	*Cladonia maxima*	SU	3.6%
Dragon Lichen	Cladoniaceae	*Cladonia squamosa*	S4S5	3.6%
Pink Earth Lichen	Baeomycetaceae	*Dibaeis baeomyces*	S4S5	3.6%
Cladonia spp.	Cladoniaceae	*Cladonia sp*	N/A	28.6%
Lungwort Lichen	Lobariaceae	*Lobaria pulmonaria*	S4S5	53.6%
Textured Lungwort Lichen	Lobariaceae	*Lobaria scrobiculata*	S4	17.9%
Yellow Specklebelly Lichen	Lobariaceae	*Pseudocyphellaria holarctica*	S2S3	7.1%

Associated Species: Wooded Swamps

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
Smooth Lung Lichen	Lobariaceae	*Ricasolia quercizans*	S4S5	25.0%
Mealy-rimmed Shingle Lichen	Pannariaceae	*Pannaria conoplea*	S1S2	3.6%
Brown-eyed Shingle Lichen	Pannariaceae	*Pannaria rubiginosa*	S1	3.6%
Bryoria Lichen	Parmeliaceae	*Bryoria sp*	N/A	25.0%
Boreal Oakmoss Lichen	Parmeliaceae	*Evernia mesomorpha*	S5	7.1%
Monk's Hood Lichen	Parmeliaceae	*Hypogymnia physodes*	S5	46.4%
Powder-headed Tube Lichen	Parmeliaceae	*Hypogymnia tubulosa*	S4S5	3.6%
Abrading Camouflage Lichen	Parmeliaceae	*Melanelixia subaurifera*	S4S5	32.1%
Hammered Shield Lichen	Parmeliaceae	*Parmelia sulcata*	S5	7.1%
Varied Rag Lichen	Parmeliaceae	*Platismatia glauca*	S5	42.9%
Usnea	Parmeliaceae	*Usnea sp*	N/A	32.1%
Bushy Beard Lichen	Parmeliaceae	*Usnea strigosa*	S4S5	3.6%
FUNGI	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Golden Spindle Fungi	Clavariaceae	*Clavulinopsis fusiformis*	SU?	7.1%
AMPHIBIANS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Green Frog	Ranidae	*Lithobates clamitans*	S4S5	3.6%
BIRDS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Great Blue Heron	Ardeidae	*Ardea herodias*	S4B	3.6%
Golden-crowned Kinglet	Regulidae	*Regulus satrapa*	S5	3.6%
American Woodcock	Scolopacidae	*Scolopax minor*	S5B	7.1%
MAMMALS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
North American Beaver	Castoridae	*Castor canadensis*	S5	3.6%

SPECIES LIST

Habitat:	Wooded Riparian
# of Sites	10

BIODIVERSITY

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
CONIFEROUS TREES	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Eastern White Cedar	*Cupressaceae*	*Thuja occidentalis*	S3S4	10.0%
Balsam Fir	*Pinaceae*	*Abies balsamea*	S5	80.0%
Tamarack	*Pinaceae*	*Larix laricina*	S5	40.0%
White Spruce	*Pinaceae*	*Picea glauca*	S5	40.0%
Black Spruce	*Pinaceae*	*Picea mariana*	S5	20.0%
Red Spruce	*Pinaceae*	*Picea rubens*	S5	60.0%
Eastern White Pine	*Pinaceae*	*Pinus strobus*	S3S4	40%
Eastern Hemlock	*Pinaceae*	*Tsuga canadensis*	S3	100.0%
DECIDUOUS TREES	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Yellow Birch	*Betulaceae*	*Betula alleghaniensis*	S5	70.0%
Paper Birch	*Betulaceae*	*Betula papyrifera*	S5	70.0%
Gray Birch	*Betulaceae*	*Betula populifolia*	S5	10.0%
American Beech	*Fagaceae*	*Fagus grandifolia*	S3S4	40%
Northern Red Oak	*Fagaceae*	*Quercus rubra*	S3S4	10%
White Ash	*Oleaceae*	*Fraxinus americana*	S2S3	60.0%
Pin Cherry	*Rosaceae*	*Prunus pensylvanica*	S5	10.0%
American Mountain Ash	*Rosaceae*	*Sorbus americana*	S5	60.0%
Large-toothed Aspen	*Salicaceae*	*Populus grandidentata*	S4S5	10%
Trembling Aspen	*Salicaceae*	*Populus tremuloides*	S5	40.0%
Striped Maple	*Sapindaceae*	*Acer pensylvanicum*	S5	60.0%
Red Maple	*Sapindaceae*	*Acer rubrum*	S5	90.0%
Sugar Maple	*Sapindaceae*	*Acer saccharum*	S4	40.0%
White Elm	*Ulmaceae*	*Ulmus americana*	S3	10.0%
SHRUBS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Skunk Currant	*Grossulariaceae*	*Ribes glandulosum*	S5	50.0%
Smooth Gooseberry	*Grossulariaceae*	*Ribes hirtellum*	S5	20.0%
Bristly Black Currant	*Grossulariaceae*	*Ribes lacustre*	S5	90.0%
Smooth Blackberry	*Rosaceae*	*Rubus canadensis*	S5	40.0%
Bristly Dewberry	*Rosaceae*	*Rubus hispidus*	S4	40.0%
Red Raspberry	*Rosaceae*	*Rubus idaeus*	S5	40.0%
Dwarf Red Raspberry	*Rosaceae*	*Rubus pubescens*	S5	80.0%
Canada Yew	*Taxaceae*	*Taxus canadensis*	S4	110.0%
Spreading Dogbane	*Apocynaceae*	*Apocynum androsaemifolium*	S4	10%
Mountain Holly	*Aquifoliaceae*	*Ilex mucronata*	S5	10.0%
Common Winterberry	*Aquifoliaceae*	*Ilex verticillata*	S5	20.0%

Associated Species: Wooded Riparians

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
Green Alder	*Betulaceae*	*Alnus alnobetula*	S4S5	10.0%
Speckled Alder	*Betulaceae*	*Alnus incana*	S5	80.0%
Beaked Hazel	*Betulaceae*	*Corylus cornuta*	S5	80.0%
Canada Fly Honeysuckle	*Caprifoliaceae*	*Lonicera canadensis*	S5	60.0%
Mountain Fly Honeysuckle	*Caprifoliaceae*	*Lonicera villosa*	S4	40.0%
Alternate-leaved Dogwood	*Cornaceae*	*Cornus alternifolia*	S4	10.0%
Red Osier Dogwood	*Cornaceae*	*Cornus sericea*	S5	30.0%
American Witch-Hazel	*Hamamelidaceae*	*Hamamelis virginiana*	S1	30%
Northern Bayberry	*Myricaceae*	*Morella pensylvanica*	S5	10%
Sweet Gale	*Myricaceae*	*Myrica gale*	S5	10.0%
alder-leaved buckthorn	*Rhamnaceae*	*Endotropis alnifolia*	S3S4	70.0%
Serviceberry	*Rosaceae*	*Amelanchier sp*	N/A	20.0%
Chokecherry	*Rosaceae*	*Prunus virginiana*	S5	50.0%
Shining Rose	*Rosaceae*	*Rosa nitida*	S4	50.0%
White Meadowsweet	*Rosaceae*	*Spiraea alba*	S5	20.0%
Willow	*Salicaceae*	*Salix spp.*	N/A	40.0%
Mountain Maple	*Sapindaceae*	*Acer spicatum*	S5	100.0%
Common Elderberry	*Viburnaceae*	*Sambucus canadensis*	S4S5	30.0%
Red Elderberry	*Viburnaceae*	*Sambucus racemosa*	S5	10.0%
Northern Wild Raisin	*Viburnaceae*	*Viburnum cassinoides*	S5	70.0%
Hobblebush	*Viburnaceae*	*Viburnum lantanoides*	S1S2	90%
Highbush Cranberry	*Viburnaceae*	*Viburnum opulus*	S3	30.0%
Leatherleaf	*Ericaceae*	*Chamaedaphne calyculata*	S4	10.0%
Sheep Laurel	*Ericaceae*	*Kalmia angustifolia*	S5	40.0%
Rhodora	*Ericaceae*	*Rhododendron canadense*	S5	10.0%
Common Labrador Tea	*Ericaceae*	*Rhododendron groenlandicum*	S5	30.0%
Late Lowbush Blueberry	*Ericaceae*	*Vaccinium angustifolium*	S5	50.0%
Velvet-leaved Blueberry	*Ericaceae*	*Vaccinium myrtilloides*	S4S5	30.0%
Virginia Clematis	*Ranunculaceae*	*Clematis virginiana*	S4	20.0%
NON-NATIVE TREES	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
European Mountain Ash	*Rosaceae*	*Sorbus aucuparia*	SNA	20.0%
WILDFLOWERS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Star Duckweed	*Araceae*	*Lemna trisulca*	S3S4	10%
Turion Duckweed	*Araceae*	*Lemna turionifera*	S4S5	10.0%
Siberian Water Milfoil	*Haloragaceae*	*Myriophyllum sibiricum*	S4	10%
Clasping-leaved Pondweed	*Potamogetonaceae*	*Potamogeton perfoliatus*	S4	20%
Broad-leaved Cattail	*Typhaceae*	*Typha latifolia*	S5	10.0%
Trailing Arbutus	*Ericaceae*	*Epigaea repens*	S4	30.0%
Creeping Snowberry	*Ericaceae*	*Gaultheria hispidula*	S5	30.0%
Eastern Teaberry	*Ericaceae*	*Gaultheria procumbens*	S4S5	30.0%

Associated Species: Wooded Riparians

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
Convulsion-Root	*Ericaceae*	*Monotropa uniflora*	S5	10.0%
One-sided Wintergreen	*Ericaceae*	*Orthilia secunda*	S4S5	60.0%
Round-leaved Pyrola	*Ericaceae*	*Pyrola americana*	S4	10.0%
Pink Pyrola	*Ericaceae*	*Pyrola asarifolia*	S2S3	10%
Shinleaf	*Ericaceae*	*Pyrola elliptica*	S5	30.0%
Helleborine	*Orchidaceae*	*Epipactis helleborine*	SNA	30.0%
Small Purple Fringed Orchid	*Orchidaceae*	*Platanthera psycodes*	S4	20.0%
Eastern Burnweed	*Asteraceae*	*Erechtites hieraciifolius*	S4	10%
Grass-leaved Goldenrod	*Asteraceae*	*Euthamia graminifolia*	S5	10.0%
Rough Hawkweed	*Asteraceae*	*Hieracium scabrum*	S4	30%
Tansy Ragwort	*Asteraceae*	*Jacobaea vulgaris*	SNA	10%
Tall Blue Lettuce	*Asteraceae*	*Lactuca biennis*	S5	30.0%
White Goldenrod	*Asteraceae*	*Solidago bicolor*	S4	10%
Canada Goldenrod	*Asteraceae*	*Solidago canadensis*	S5	60.0%
Downy Goldenrod	*Asteraceae*	*Solidago puberula*	S4S5	10%
Rough-stemmed Goldenrod	*Asteraceae*	*Solidago rugosa*	S5	40.0%
New York Aster	*Asteraceae*	*Symphyotrichum novi-belgii*	S5	20%
Common Dandelion	*Asteraceae*	*Taraxacum officinale*	SNA	10.0%
Coltsfoot	*Asteraceae*	*Tussilago farfara*	SNA	20.0%
Common Self-heal	*Lamiaceae*	*Prunella vulgaris*	S5	20.0%
Kidney-Leaved Buttercup	*Ranunculaceae*	*Ranunculus abortivus*	S4	10.0%
Common Buttercup	*Ranunculaceae*	*Ranunculus acris*	SNA	10%
Rough Cinquefoil	*Rosaceae*	*Potentilla norvegica*	S4S5	30.0%
Pink Lady's-Slipper	*Orchidaceae*	*Cypripedium acaule*	S5	10.0%
Maryland Sanicle	*Apiaceae*	*Sanicula marilandica*	S3S4	40.0%
Jack-in-the-pulpit	*Araceae*	*Arisaema triphyllum*	S4	40.0%
Wild Sarsaparilla	*Araliaceae*	*Aralia nudicaulis*	S5	30.0%
Wild Lily-of-The-Valley	*Asparagaceae*	*Maianthemum canadense*	S5	50.0%
Three-leaved Rattlesnakeroot	*Asteraceae*	*Nabalus trifoliolatus*	S5	10.0%
Whorled Wood Aster	*Asteraceae*	*Oclemena acuminata*	S5	30.0%
Heart-leaved Aster	*Asteraceae*	*Symphyotrichum cordifolium*	S4	10%
Hairy Flat-top White Aster	*Asteraceae*	*Doellingeria umbellata*	S5	50.0%
Zigzag Goldenrod	*Asteraceae*	*Solidago flexicaulis*	S3	30%
Aster spp.	*Asteraceae*	*Symphyotrichum sp*	N/A	30.0%
Calico Aster	*Asteraceae*	*Symphyotrichum lateriflorum*	S5	70.0%
Twinflower	*Caprifoliaceae*	*Linnaea borealis*	S5	50.0%
Bunchberry	*Cornaceae*	*Cornus canadensis*	S5	70.0%
Common Hemp-nettle	*Lamiaceae*	*Galeopsis tetrahit*	SNA	50.0%
Yellow Bluebead Lily	*Liliaceae*	*Clintonia borealis*	S5	60.0%

Associated Species: Wooded Riparians

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
Cucumber Root	*Liliaceae*	*Medeola virginiana*	S3S4	30%
Painted Trillium	*Melanthiaceae*	*Trillidium undulatum*	S5	20.0%
Nodding Trillium	*Melanthiaceae*	*Trillium cernuum*	S4	10.0%
Fireweed	*Onagraceae*	*Chamaenerion angustifolium*	S5	20.0%
Small Enchanter's Nightshade	*Onagraceae*	*Circaea alpina*	S5	90.0%
Common Wood Sorrel	*Oxalidaceae*	*Oxalis montana*	S4	30%
European Wood Sorrel	*Oxalidaceae*	*Oxalis stricta*	S5	20.0%
Common Speedwell	*Plantaginaceae*	*Veronica officinalis*	SNA	30%
Northern Starflower	*Primulaceae*	*Lysimachia borealis*	S5	50.0%
Red Baneberry	*Ranunculaceae*	*Actaea rubra*	S4	10.0%
Goldthread	*Ranunculaceae*	*Coptis trifolia*	S5	30.0%
Creeping Buttercup	*Ranunculaceae*	*Ranunculus repens*	SNA	90.0%
Woodland Agrimony	*Rosaceae*	*Agrimonia striata*	S4	20.0%
Hooked Agrimony	*Rosaceae*	*Agrimonia gryposepala*	S3	20.0%
Partridgeberry	*Rubiaceae*	*Mitchella repens*	S2S3	10%
Bittersweet Nightshade	*Solanaceae*	*Solanum dulcamara*	SNA	10.0%
Broad-leaved Arrowhead	*Alismataceae*	*Sagittaria latifolia*	S4	20.0%
Bulbous Water-hemlock	*Apiaceae*	*Cicuta bulbifera*	S4S5	20.0%
Common Water Parsnip	*Apiaceae*	*Sium suave*	S5	10.0%
Swamp Milkweed	*Apocynaceae*	*Asclepias incarnata*	S2	20%
Spotted Joe Pye Weed	*Asteraceae*	*Eutrochium maculatum*	S5	20.0%
Purple-stemmed Aster	*Asteraceae*	*Symphyotrichum puniceum*	S5	50.0%
Spotted Jewelweed	*Balsaminaceae*	*Impatiens capensis*	S5	50.0%
Small Forget-Me-Not	*Boraginaceae*	*Myosotis laxa*	S4	80.0%
Pennsylvania Bittercress	*Brassicaceae*	*Cardamine pensylvanica*	S4S5	50.0%
Round-leaved Sundew	*Droseraceae*	*Drosera rotundifolia*	S4	10.0%
Small Cranberry	*Ericaceae*	*Vaccinium oxycoccos*	S4	10.0%
Harlequin Blue Flag	*Iridaceae*	*Iris versicolor*	S5	10.0%
American Water Horehound	*Lamiaceae*	*Lycopus americanus*	S4S5	10.0%
Northern Water Horehound	*Lamiaceae*	*Lycopus uniflorus*	S5	10.0%
Canadian Mint	*Lamiaceae*	*Mentha canadensis*	S4S5	30%
Marsh Skullcap	*Lamiaceae*	*Scutellaria galericulata*	S4S5	40.0%
Mad-dog Skullcap	*Lamiaceae*	*Scutellaria lateriflora*	S5	70.0%
Northern Willowherb	*Onagraceae*	*Epilobium ciliatum*	S5	70.0%
Bog Willowherb	*Onagraceae*	*Epilobium leptophyllum*	S4S5	20.0%
Square-stemmed Monkeyflower	*Phrymaceae*	*Mimulus ringens*	S3S4	20%
White Turtlehead	*Plantaginaceae*	*Chelone glabra*	S5	40.0%
American Speedwell	*Plantaginaceae*	*Veronica americana*	S4	50.0%
False Waterpepper	*Polygonaceae*	*Persicaria hydropiperoides*	SNA	10%

Associated Species: Wooded Riparians

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
Pale Smartweed	*Polygonaceae*	*Persicaria lapathifolia*	S4S5	20%
Arrow-leaved Smartweed	*Polygonaceae*	*Persicaria sagittata*	S5	20.0%
Greater Water Dock	*Polygonaceae*	*Rumex britannica*	S5	10.0%
Yellow Marsh Marigold	*Ranunculaceae*	*Caltha palustris*	S4S5	10.0%
Hooked Buttercup	*Ranunculaceae*	*Ranunculus recurvatus*	S2	10%
White Water Buttercup	*Ranunculaceae*	*Ranunculus trichophyllus*	S4	20%
Tall Meadow-Rue	*Ranunculaceae*	*Thalictrum pubescens*	S5	70.0%
Rough Avens	*Rosaceae*	*Geum laciniatum*	S4	10.0%
Large-Leaved Avens	*Rosaceae*	*Geum macrophyllum*	S3S4	10%
Water Avens	*Rosaceae*	*Geum rivale*	S4	10.0%
Rough Bedstraw	*Rubiaceae*	*Galium asprellum*	S4S5	20.0%
Common Marsh Bedstraw	*Rubiaceae*	*Galium palustre*	S5	70.0%
Three-petaled Bedstraw	*Rubiaceae*	*Galium trifidum*	S4S5	30.0%
Three-flowered Bedstraw	*Rubiaceae*	*Galium triflorum*	S5	30.0%
American Golden Saxifrage	*Saxifragaceae*	*Chrysosplenium americanum*	S4	40.0%
Naked Bishop's-Cap	*Saxifragaceae*	*Mitella nuda*	S4	60.0%
Stinging Nettle	*Urticaceae*	*Urtica dioica ssp. gracilis*	S4	40.0%
Wild Strawberry	*Rosaceae*	*Fragaria virginiana*	S5	70.0%
FERNS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Common Lady Fern	*Athyriaceae*	*Athyrium filix-femina*	S5	80.0%
Common Oak Fern	*Cystopteridaceae*	*Gymnocarpium dryopteris*	S5	60.0%
Eastern Hay-Scented Fern	*Dennstaedtiaceae*	*Dennstaedtia punctilobula*	S5	10%
Bracken Fern	*Dennstaedtiaceae*	*Pteridium aquilinum*	S5	50.0%
Mountain Wood Fern	*Dryopteridaceae*	*Dryopteris campyloptera*	S4	20.0%
Spinulose Wood Fern	*Dryopteridaceae*	*Dryopteris carthusiana*	S4S5	40.0%
Crested Wood Fern	*Dryopteridaceae*	*Dryopteris cristata*	S5	20.0%
Evergreen Wood Fern	*Dryopteridaceae*	*Dryopteris intermedia*	S5	60.0%
Christmas Fern	*Dryopteridaceae*	*Polystichum acrostichoides*	S2S3	100.0%
Ostrich Fern	*Onocleaceae*	*Matteuccia struthiopteris*	S4	60.0%
Sensitive Fern	*Onocleaceae*	*Onoclea sensibilis*	S5	80.0%
Interrupted Fern	*Osmundaceae*	*Claytosmunda claytoniana*	S5	20.0%
Cinnamon Fern	*Osmundaceae*	*Osmundastrum cinnamomeum*	S5	90.0%
New York Fern	*Thelypteridaceae*	*Parathelypteris noveboracensis*	S5	40.0%
Northern Beech Fern	*Thelypteridaceae*	*Phegopteris connectilis*	S5	30.0%
Eastern Marsh Fern	*Thelypteridaceae*	*Thelypteris palustris*	S4S5	20.0%
CLUBMOSSES	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Northern Ground-cedar	*Lycopodiaceae*	*Diphasiastrum complanatum*	S3	10%
Shining Firmoss	*Lycopodiaceae*	*Huperzia lucidula*	S4	10%
Northern Bog Clubmoss	*Lycopodiaceae*	*Lycopodiella inundata*	S3	10.0%
HORSETAILS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	

Associated Species: Wooded Riparians

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
Woodland Horsetail	*Equisetaceae*	*Equisetum sylvaticum*	S5	40.0%
MOSSES	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Common Smoothcap Moss	Polytrichaceae	*Atrichum undulatum*	S4S5	20%
Northern Tree Moss	Climaciaceae	*Climacium dendroides*	S5	70.0%
Wavy-leaved Broom Moss	Dicranaceae	*Dicranum polysetum*	S5	10%
Common Broom Moss	Dicranaceae	*Dicranum scoparium*	S5	80.0%
Green Broom Moss	Dicranaceae	*Dicranum viride*	S4?	40%
Stairstep Moss	Hylocomiaceae	*Hylocomium splendens*	S5	80.0%
Electrified Cat's-tail Moss	Hylocomiaceae	*Rhytidiadelphus triquetrus*	S5	80.0%
Red-stemmed Feather Moss	Hylocomiaceae	*Pleurozium schreberi*	S5	50.0%
Pellucid Plait Moss	*Hypnaceae*	*Hypnum imponens*	S5	60.0%
Knight's Plume Moss	*Hypnaceae*	*Ptilium crista-castrensis*	S5	20.0%
Swan's-neck Leafy Moss	Mniaceae	*Mnium hornum*	S5	30.0%
Woodsy Leafy Moss	Mniaceae	*Plagiomnium cuspidatum*	S4S5	10.0%
Common Flat-branch Moss	*Neckeraceae*	*Homalia trichomanoides*	SU	10.0%
Feathery Neckera Moss	*Neckeraceae*	*Neckera pennata*	S5	40.0%
Crisped Pincushion Moss	Orthotrichaceae	*Ulota crispa*	S5	50.0%
Smoothcap Moss	Polytrichaceae	*Atrichum sp*	N/A	20.0%
Common Haircap Moss	Polytrichaceae	*Polytrichum commune*	S5	70.0%
Peatmoss	*Sphagnaceae*	*Sphagnum sp*	N/A	30.0%
Green Peat Moss	*Sphagnaceae*	*Sphagnum girgensohnii*	S5	40.0%
Shaggy Peat Moss	Sphagnaceae	*Sphagnum squarrosum*	S5	40.0%
Delicate Fern Moss	*Thuidiaceae*	*Thuidium delicatulum*	S4S5	80.0%
LIVERWORTS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Snake Liverwort	Conocephalaceae	*Conocephalum salebrosum*	SU	10.0%
Frullania Liverwort	Jubulaceae	*Frullania sp.*	SU	60.0%
Wood Rustwort	Cephaloziaceae	*Nowellia curvifolia*	SU	30.0%
Scalewort	Jubulaceae	*Frullania sp*	N/A	20.0%
Three-lobed Whipwort	Lepidoziaceae	*Bazzania trilobata*	S5	70.0%
Variable-Leaved Crestwort	Lophocoleaceae	*Lophocolea heterophylla*	SU	20.0%
Green-tongue Liverwort	Marchantiaceae	*Marchantia polymorpha*	SU	40%
Common Pellia	Pelliaceae	*Pellia epiphylla*	SU	30.0%
Lesser Featherwort	Plagiochilaceae	*Plagiochila porelloides*	SU	20.0%
Wall Scalewort	Porellaceae	*Porella platyphylla*	SU	30.0%
	Ptilidiaceae	*Ptilidium pulcherrimum*	SU	40.0%
Flat-leaved Scalewort	Radulaceae	*Radula complanata*	SU	70.0%
Woolly Liverwort	Trichocoleaceae	*Trichocolea tomentella*	SU	80.0%
LICHENS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Buellia spp.	Physciaceae	*Buellia sp*	N/A	10.0%
Bottlebrush Shield Lichen	Parmeliaceae	*Parmelia squarrosa*	S5	70.0%

Associated Species: Wooded Riparians

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
Reindeer Lichen	Cladoniaceae	*Cladonia arbuscula*	S5	10.0%
Powdered Funnel Lichen	Cladoniaceae	*Cladonia cenotea*	S4S5	10.0%
Gray Reindeer Lichen	Cladoniaceae	*Cladonia rangiferina*	S5	10%
Cladonia spp.	Cladoniaceae	*Cladonia sp*	N/A	50.0%
a Lichen	Graphidaceae	*Graphis scripta*	S5	10%
Lecanora spp.	Lecanoraceae	*Lecanora spp.*	N/A	10%
Lungwort Lichen	Lobariaceae	*Lobaria pulmonaria*	S4S5	70.0%
Textured Lungwort Lichen	Lobariaceae	*Lobaria scrobiculata*	S4	10.0%
Smooth Lung Lichen	Lobariaceae	*Ricasolia quercizans*	S4S5	50.0%
Bryoria Lichen	Parmeliaceae	*Bryoria sp*	N/A	20.0%
Boreal Oakmoss Lichen	Parmeliaceae	*Evernia mesomorpha*	S5	10.0%
Monk's Hood Lichen	Parmeliaceae	*Hypogymnia physodes*	S5	60.0%
Powder-headed Tube Lichen	Parmeliaceae	*Hypogymnia tubulosa*	S4S5	10.0%
Abrading Camouflage Lichen	Parmeliaceae	*Melanelixia subaurifera*	S4S5	50.0%
Varied Rag Lichen	Parmeliaceae	*Platismatia glauca*	S5	30.0%
Usnea	Parmeliaceae	*Usnea sp*	N/A	60.0%
Maritime Sunburst Lichen		*Xanthoria parietina*	S4S5	10%
FUNGI	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Golden Spindle Fungi	Clavariaceae	*Clavulinopsis fusiformis*	SU?	10.0%
AMPHIBIANS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Wood Frog	Ranidae	*Lithobates sylvaticus*	S5	10%
BIRDS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Northern Goshawk	Accipitridae	*Accipiter gentilis*	S4	10%
American Black Duck	Anatidae	*Anas rubripes*	S5B,S4N	10%
Ruffed Grouse	Phasianidae	*Bonasa umbellus*	S5	10%
MAMMALS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
North American Beaver	Castoridae	*Castor canadensis*	S5	10.0%
Snowshoe Hare	Leporidae	*Lepus americanus*	S5	10%

SPECIES LIST

Habitat:	Wooded Bog
# of Sites	4

BIODIVERSITY

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
CONIFEROUS TREES	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Eastern White Cedar	*Cupressaceae*	*Thuja occidentalis*	S3S4	50.0%
Balsam Fir	*Pinaceae*	*Abies balsamea*	S5	125.0%
Tamarack	*Pinaceae*	*Larix laricina*	S5	50.0%
Black Spruce	*Pinaceae*	*Picea mariana*	S5	25.0%
Eastern White Pine	*Pinaceae*	*Pinus strobus*	S3S4	50%
Eastern Hemlock	*Pinaceae*	*Tsuga canadensis*	S3	75.0%
DECIDUOUS TREES	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Yellow Birch	*Betulaceae*	*Betula alleghaniensis*	S5	25.0%
Paper Birch	*Betulaceae*	*Betula papyrifera*	S5	25.0%
Gray Birch	*Betulaceae*	*Betula populifolia*	S5	50.0%
White Ash	*Oleaceae*	*Fraxinus americana*	S2S3	425.0%
American Mountain Ash	*Rosaceae*	*Sorbus americana*	S5	50.0%
Trembling Aspen	*Salicaceae*	*Populus tremuloides*	S5	75.0%
Red Maple	*Sapindaceae*	*Acer rubrum*	S5	100.0%
Sugar Maple	*Sapindaceae*	*Acer saccharum*	S4	75.0%
White Elm	*Ulmaceae*	*Ulmus americana*	S3	75.0%
SHRUBS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Skunk Currant	*Grossulariaceae*	*Ribes glandulosum*	S5	25.0%
Bristly Black Currant	*Grossulariaceae*	*Ribes lacustre*	S5	25.0%
Swamp Red Currant	*Grossulariaceae*	*Ribes triste*	S3S4	50.0%
Bristly Dewberry	*Rosaceae*	*Rubus hispidus*	S4	50.0%
Red Raspberry	*Rosaceae*	*Rubus idaeus*	S5	25.0%
Dwarf Red Raspberry	*Rosaceae*	*Rubus pubescens*	S5	100.0%
Canada Yew	*Taxaceae*	*Taxus canadensis*	S4	125.0%
Mountain Holly	*Aquifoliaceae*	*Ilex mucronata*	S5	50.0%
Common Winterberry	*Aquifoliaceae*	*Ilex verticillata*	S5	75.0%
Green Alder	*Betulaceae*	*Alnus alnobetula*	S4S5	25.0%
Speckled Alder	*Betulaceae*	*Alnus incana*	S5	100.0%
Beaked Hazel	*Betulaceae*	*Corylus cornuta*	S5	75.0%
Northern Bush Honeysuckle	*Caprifoliaceae*	*Diervilla lonicera*	S4	25%
Canada Fly Honeysuckle	*Caprifoliaceae*	*Lonicera canadensis*	S5	25.0%
Mountain Fly Honeysuckle	*Caprifoliaceae*	*Lonicera villosa*	S4	75.0%
Alternate-leaved Dogwood	*Cornaceae*	*Cornus alternifolia*	S4	25.0%
Red Osier Dogwood	*Cornaceae*	*Cornus sericea*	S5	100.0%
Sweet-fern	*Myricaceae*	*Comptonia peregrina*	S4	25.0%

Associated Species: Wooded Bogs

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
Sweet Gale	*Myricaceae*	*Myrica gale*	S5	25.0%
alder-leaved buckthorn	*Rhamnaceae*	*Endotropis alnifolia*	S3S4	150.0%
Serviceberry	*Rosaceae*	*Amelanchier sp*	N/A	25.0%
Chokecherry	*Rosaceae*	*Prunus virginiana*	S5	25.0%
Shining Rose	*Rosaceae*	*Rosa nitida*	S4	75.0%
White Meadowsweet	*Rosaceae*	*Spiraea alba*	S5	25.0%
Willow	*Salicaceae*	*Salix spp.*	N/A	25.0%
Mountain Maple	*Sapindaceae*	*Acer spicatum*	S5	75.0%
Common Elderberry	*Viburnaceae*	*Sambucus canadensis*	S4S5	25.0%
Northern Wild Raisin	*Viburnaceae*	*Viburnum cassinoides*	S5	100.0%
Highbush Cranberry	*Viburnaceae*	*Viburnum opulus*	S3	25.0%
Sheep Laurel	*Ericaceae*	*Kalmia angustifolia*	S5	25.0%
Common Labrador Tea	*Ericaceae*	*Rhododendron groenlandicum*	S5	25.0%
Late Lowbush Blueberry	*Ericaceae*	*Vaccinium angustifolium*	S5	25.0%
NON-NATIVE TREES	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
European Mountain Ash	*Rosaceae*	*Sorbus aucuparia*	SNA	25.0%
WILDFLOWERS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Broad-leaved Cattail	*Typhaceae*	*Typha latifolia*	S5	50.0%
Mountain Cranberry	*Ericaceae*	*Vaccinium vitis-idaea*	S3	100%
Creeping Snowberry	*Ericaceae*	*Gaultheria hispidula*	S5	50.0%
One-sided Wintergreen	*Ericaceae*	*Orthilia secunda*	S4S5	75.0%
Pink Pyrola	*Ericaceae*	*Pyrola asarifolia*	S2S3	25%
Helleborine	*Orchidaceae*	*Epipactis helleborine*	SNA	25.0%
Early Coralroot	*Orchidaceae*	*Corallorhiza trifida*	S2S3	25.0%
Yellow Lady's-slipper	*Orchidaceae*	*Cypripedium parviflorum*	S2S3	50%
Showy Lady's-Slipper	*Orchidaceae*	*Cypripedium reginae*	S2S3	75.0%
Fragrant Green Orchid	*Orchidaceae*	*Platanthera huronensis*	S1?	25%
Small Purple Fringed Orchid	*Orchidaceae*	*Platanthera psycodes*	S4	25.0%
Common Burdock	*Asteraceae*	*Arctium minus*	SNA	25%
White Goldenrod	*Asteraceae*	*Solidago bicolor*	S4	25%
Canada Goldenrod	*Asteraceae*	*Solidago canadensis*	S5	50.0%
Rough-stemmed Goldenrod	*Asteraceae*	*Solidago rugosa*	S5	50.0%
New York Aster	*Asteraceae*	*Symphyotrichum novi-belgii*	S5	25%
Pink Lady's-Slipper	*Orchidaceae*	*Cypripedium acaule*	S5	25.0%
Woodland Angelica	*Apiaceae*	*Angelica sylvestris*	SNA	25.0%
Wild Sarsaparilla	*Araliaceae*	*Aralia nudicaulis*	S5	75.0%
Wild Lily-of-The-Valley	*Asparagaceae*	*Maianthemum canadense*	S5	75.0%
Large False Solomon's Seal	*Asparagaceae*	*Maianthemum racemosum*	S4	25%
Three-leaved Rattlesnakeroot	*Asteraceae*	*Nabalus trifoliolatus*	S5	50.0%
Whorled Wood Aster	*Asteraceae*	*Oclemena acuminata*	S5	50.0%

Associated Species: Wooded Bogs

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
Hairy Flat-top White Aster	*Asteraceae*	*Doellingeria umbellata*	S5	50.0%
Aster spp.	*Asteraceae*	*Symphyotrichum sp*	N/A	25.0%
Calico Aster	*Asteraceae*	*Symphyotrichum lateriflorum*	S5	50.0%
Twinflower	*Caprifoliaceae*	*Linnaea borealis*	S5	50.0%
Bunchberry	*Cornaceae*	*Cornus canadensis*	S5	75.0%
Herb Robert	*Geraniaceae*	*Geranium robertianum*	S4	50%
Yellow Bluebead Lily	*Liliaceae*	*Clintonia borealis*	S5	25.0%
Small Enchanter's Nightshade	*Onagraceae*	*Circaea alpina*	S5	75.0%
Northern Starflower	*Primulaceae*	*Lysimachia borealis*	S5	25.0%
Red Baneberry	*Ranunculaceae*	*Actaea rubra*	S4	25.0%
Goldthread	*Ranunculaceae*	*Coptis trifolia*	S5	25.0%
Creeping Buttercup	*Ranunculaceae*	*Ranunculus repens*	SNA	75.0%
Woodland Agrimony	*Rosaceae*	*Agrimonia striata*	S4	75.0%
Common Water Parsnip	*Apiaceae*	*Sium suave*	S5	25.0%
Wild Calla	*Araceae*	*Calla palustris*	S4	25.0%
Three-leaved False Soloman's Seal	*Asparagaceae*	*Maianthemum trifolium*	S4	25.0%
Spotted Joe Pye Weed	*Asteraceae*	*Eutrochium maculatum*	S5	25.0%
Northern Bog Goldenrod	*Asteraceae*	*Solidago uliginosa*	S4	50.0%
Purple-stemmed Aster	*Asteraceae*	*Symphyotrichum puniceum*	S5	50.0%
Spotted Jewelweed	*Balsaminaceae*	*Impatiens capensis*	S5	50.0%
Small Forget-Me-Not	*Boraginaceae*	*Myosotis laxa*	S4	25.0%
Small Cranberry	*Ericaceae*	*Vaccinium oxycoccos*	S4	25.0%
Northern Water Horehound	*Lamiaceae*	*Lycopus uniflorus*	S5	25.0%
Marsh Skullcap	*Lamiaceae*	*Scutellaria galericulata*	S4S5	25.0%
Mad-dog Skullcap	*Lamiaceae*	*Scutellaria lateriflora*	S5	25.0%
Northern Willowherb	*Onagraceae*	*Epilobium ciliatum*	S5	75.0%
Bog Willowherb	*Onagraceae*	*Epilobium leptophyllum*	S4S5	50.0%
Marsh Water-starwort	*Plantaginaceae*	*Callitriche palustris*	S4	25.0%
Halberd-leaved Tearthumb	*Polygonaceae*	*Persicaria arifolia*	S3	25.0%
Yellow Marsh Marigold	*Ranunculaceae*	*Caltha palustris*	S4S5	50.0%
Tall Meadow-Rue	*Ranunculaceae*	*Thalictrum pubescens*	S5	100.0%
Avens	*Rosaceae*	*Geum sp*	N/A	25.0%
Rough Avens	*Rosaceae*	*Geum laciniatum*	S4	25.0%
Water Avens	*Rosaceae*	*Geum rivale*	S4	50.0%
Rough Bedstraw	*Rubiaceae*	*Galium asprellum*	S4S5	25.0%
Common Marsh Bedstraw	*Rubiaceae*	*Galium palustre*	S5	50.0%
Three-petaled Bedstraw	*Rubiaceae*	*Galium trifidum*	S4S5	175.0%
Three-flowered Bedstraw	*Rubiaceae*	*Galium triflorum*	S5	175.0%
American Golden Saxifrage	*Saxifragaceae*	*Chrysosplenium americanum*	S4	25.0%

Associated Species: Wooded Bogs

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
Naked Bishop's-Cap	*Saxifragaceae*	*Mitella nuda*	S4	25.0%
Wild Strawberry	*Rosaceae*	*Fragaria virginiana*	S5	75.0%
FERNS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Common Lady Fern	*Athyriaceae*	*Athyrium filix-femina*	S5	25.0%
Bracken Fern	*Dennstaedtiaceae*	*Pteridium aquilinum*	S5	25.0%
Mountain Wood Fern	*Dryopteridaceae*	*Dryopteris campyloptera*	S4	25.0%
Spinulose Wood Fern	*Dryopteridaceae*	*Dryopteris carthusiana*	S4S5	25.0%
Crested Wood Fern	*Dryopteridaceae*	*Dryopteris cristata*	S5	75.0%
Evergreen Wood Fern	*Dryopteridaceae*	*Dryopteris intermedia*	S5	25.0%
Christmas Fern	*Dryopteridaceae*	*Polystichum acrostichoides*	S2S3	50.0%
Sensitive Fern	*Onocleaceae*	*Onoclea sensibilis*	S5	100.0%
Interrupted Fern	*Osmundaceae*	*Claytosmunda claytoniana*	S5	50.0%
Royal Fern	*Osmundaceae*	*Osmunda regalis var. spectabilis*	S4	50.0%
Cinnamon Fern	*Osmundaceae*	*Osmundastrum cinnamomeum*	S5	125.0%
New York Fern	*Thelypteridaceae*	*Parathelypteris noveboracensis*	S5	25.0%
Northern Beech Fern	*Thelypteridaceae*	*Phegopteris connectilis*	S5	25.0%
Eastern Marsh Fern	*Thelypteridaceae*	*Thelypteris palustris*	S4S5	25.0%
HORSETAILS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Water Horsetail	*Equisetaceae*	*Equisetum fluviatile*	S4	25%
Woodland Horsetail	*Equisetaceae*	*Equisetum sylvaticum*	S5	50.0%
MOSSES	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Squirrel-tail Moss	Leucodontaceae	*Leucodon sciuroides*	SU?	25.0%
Glow Moss	Aulacomniaceae	*Aulacomnium palustre*	S5	25.0%
Northern Tree Moss	Climaciaceae	*Climacium dendroides*	S5	50.0%
Wavy-leaved Broom Moss	Dicranaceae	*Dicranum polysetum*	S5	25%
Common Broom Moss	Dicranaceae	*Dicranum scoparium*	S5	50.0%
Green Broom Moss	Dicranaceae	*Dicranum viride*	S4?	25%
Stairstep Moss	Hylocomiaceae	*Hylocomium splendens*	S5	75.0%
Electrified Cat's-tail Moss	Hylocomiaceae	*Rhytidiadelphus triquetrus*	S5	75.0%
Red-stemmed Feather Moss	Hylocomiaceae	*Pleurozium schreberi*	S5	50.0%
Pellucid Plait Moss	*Hypnaceae*	*Hypnum imponens*	S5	25.0%
White Pincushion Moss	Leucobryaceae	*Leucobryum glaucum*	SU	25.0%
Common Flat-branch Moss	*Neckeraceae*	*Homalia trichomanoides*	SU	25.0%
Feathery Neckera Moss	*Neckeraceae*	*Neckera pennata*	S5	25.0%
Crisped Pincushion Moss	Orthotrichaceae	*Ulota crispa*	S5	25.0%
Common Haircap Moss	Polytrichaceae	*Polytrichum commune*	S5	100.0%
Peatmoss	*Sphagnaceae*	*Sphagnum sp*	N/A	50.0%
Green Peat Moss	*Sphagnaceae*	*Sphagnum girgensohnii*	S5	25.0%
Shaggy Peat Moss	Sphagnaceae	*Sphagnum squarrosum*	S5	25.0%
Delicate Fern Moss	*Thuidiaceae*	*Thuidium delicatulum*	S4S5	50.0%

Associated Species: Wooded Bogs

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
LIVERWORTS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Frullania Liverwort	Jubulaceae	*Frullania sp.*	SU	75.0%
Three-lobed Whipwort	Lepidoziaceae	*Bazzania trilobata*	S5	25.0%
Variable-Leaved Crestwort	Lophocoleaceae	*Lophocolea heterophylla*	SU	25.0%
Green-tongue Liverwort	Marchantiaceae	*Marchantia polymorpha*	SU	25%
Wall Scalewort	Porellaceae	*Porella platyphylla*	SU	25.0%
	Ptilidiaceae	*Ptilidium pulcherrimum*	SU	25.0%
Flat-leaved Scalewort	Radulaceae	*Radula complanata*	SU	25.0%
Woolly Liverwort	Trichocoleaceae	*Trichocolea tomentella*	SU	25.0%
LICHENS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Buellia spp.	Physciaceae	*Buellia sp*	N/A	25.0%
Bottlebrush Shield Lichen	Parmeliaceae	*Parmelia squarrosa*	S5	75.0%
Cladonia spp.	Cladoniaceae	*Cladonia sp*	N/A	50.0%
Blue Jellyskin Lichen	Collemataceae	*Leptogium cyanescens*	S5	25%
Lungwort Lichen	Lobariaceae	*Lobaria pulmonaria*	S4S5	100.0%
Textured Lungwort Lichen	Lobariaceae	*Lobaria scrobiculata*	S4	50.0%
Smooth Lung Lichen	Lobariaceae	*Ricasolia quercizans*	S4S5	25.0%
Bryoria Lichen	Parmeliaceae	*Bryoria sp*	N/A	50.0%
Monk's Hood Lichen	Parmeliaceae	*Hypogymnia physodes*	S5	75.0%
Abrading Camouflage Lichen	Parmeliaceae	*Melanelixia subaurifera*	S4S5	25.0%
Hammered Shield Lichen	Parmeliaceae	*Parmelia sulcata*	S5	25.0%
Varied Rag Lichen	Parmeliaceae	*Platismatia glauca*	S5	50.0%
Crumpled Rag Lichen	Parmeliaceae	*Platismatia tuckermanii*	S3S4	50%
Usnea	Parmeliaceae	*Usnea sp*	N/A	100.0%
BIRDS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
American Black Duck	Anatidae	*Anas rubripes*	S5B,S4N	25%
MAMMALS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
North American Beaver	Castoridae	*Castor canadensis*	S5	25.0%
Snowshoe Hare	Leporidae	*Lepus americanus*	S5	25%

SPECIES LIST

Habitat:	Open Riparian
# of Sites	2

BIODIVERSITY

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
CONIFEROUS TREES	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Eastern White Cedar	*Cupressaceae*	*Thuja occidentalis*	S3S4	100.0%
Balsam Fir	*Pinaceae*	*Abies balsamea*	S5	100.0%
Eastern Hemlock	*Pinaceae*	*Tsuga canadensis*	S3	150.0%
DECIDUOUS TREES	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Yellow Birch	*Betulaceae*	*Betula alleghaniensis*	S5	200.0%
American Beech	*Fagaceae*	*Fagus grandifolia*	S3S4	50%
Striped Maple	*Sapindaceae*	*Acer pensylvanicum*	S5	50.0%
Red Maple	*Sapindaceae*	*Acer rubrum*	S5	100.0%
SHRUBS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Red Raspberry	*Rosaceae*	*Rubus idaeus*	S5	50.0%
Dwarf Red Raspberry	*Rosaceae*	*Rubus pubescens*	S5	50.0%
Canada Yew	*Taxaceae*	*Taxus canadensis*	S4	50.0%
Common Winterberry	*Aquifoliaceae*	*Ilex verticillata*	S5	50.0%
Speckled Alder	*Betulaceae*	*Alnus incana*	S5	50.0%
Beaked Hazel	*Betulaceae*	*Corylus cornuta*	S5	50.0%
American Witch-Hazel	*Hamamelidaceae*	*Hamamelis virginiana*	S1	100%
Willow	*Salicaceae*	*Salix spp.*	N/A	50.0%
Mountain Maple	*Sapindaceae*	*Acer spicatum*	S5	100.0%
Common Elderberry	*Viburnaceae*	*Sambucus canadensis*	S4S5	100.0%
Hobblebush	*Viburnaceae*	*Viburnum lantanoides*	S1S2	100%
WILDFLOWERS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Turion Duckweed	*Araceae*	*Lemna turionifera*	S4S5	50.0%
Green-fruited Burreed	*Typhaceae*	*Sparganium emersum*	S4S5	50.0%
Creeping Snowberry	*Ericaceae*	*Gaultheria hispidula*	S5	50.0%
Pinesap	*Ericaceae*	*Hypopitys monotropa*	S3	50%
Convulsion-Root	*Ericaceae*	*Monotropa uniflora*	S5	100.0%
Helleborine	*Orchidaceae*	*Epipactis helleborine*	SNA	100.0%
Kidney-Leaved Buttercup	*Ranunculaceae*	*Ranunculus abortivus*	S4	50.0%
Wild Sarsaparilla	*Araliaceae*	*Aralia nudicaulis*	S5	50.0%
Wild Lily-of-The-Valley	*Asparagaceae*	*Maianthemum canadense*	S5	50.0%
Large False Solomon's Seal	*Asparagaceae*	*Maianthemum racemosum*	S4	50%
Whorled Wood Aster	*Asteraceae*	*Oclemena acuminata*	S5	50.0%
Bunchberry	*Cornaceae*	*Cornus canadensis*	S5	100.0%
Cucumber Root	*Liliaceae*	*Medeola virginiana*	S3S4	50%
Painted Trillium	*Melanthiaceae*	*Trillidium undulatum*	S5	100.0%
Small Enchanter's Nightshade	*Onagraceae*	*Circaea alpina*	S5	150.0%

Associated Species: Open Riparian

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
Northern Starflower	*Primulaceae*	*Lysimachia borealis*	S5	50.0%
Goldthread	*Ranunculaceae*	*Coptis trifolia*	S5	100.0%
Creeping Buttercup	*Ranunculaceae*	*Ranunculus repens*	SNA	50.0%
Spotted Jewelweed	*Balsaminaceae*	*Impatiens capensis*	S5	50.0%
Small Forget-Me-Not	*Boraginaceae*	*Myosotis laxa*	S4	100.0%
American Water Horehound	*Lamiaceae*	*Lycopus americanus*	S4S5	50.0%
Northern Water Horehound	*Lamiaceae*	*Lycopus uniflorus*	S5	50.0%
Canadian Mint	*Lamiaceae*	*Mentha canadensis*	S4S5	50%
Marsh Skullcap	*Lamiaceae*	*Scutellaria galericulata*	S4S5	100.0%
American Speedwell	*Plantaginaceae*	*Veronica americana*	S4	50.0%
Yellow Marsh Marigold	*Ranunculaceae*	*Caltha palustris*	S4S5	50.0%
Tall Meadow-Rue	*Ranunculaceae*	*Thalictrum pubescens*	S5	100.0%
Common Marsh Bedstraw	*Rubiaceae*	*Galium palustre*	S5	150.0%
American Golden Saxifrage	*Saxifragaceae*	*Chrysosplenium americanum*	S4	100.0%
FERNS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Spinulose Wood Fern	*Dryopteridaceae*	*Dryopteris carthusiana*	S4S5	50.0%
Evergreen Wood Fern	*Dryopteridaceae*	*Dryopteris intermedia*	S5	50.0%
Sensitive Fern	*Onocleaceae*	*Onoclea sensibilis*	S5	50.0%
Cinnamon Fern	*Osmundaceae*	*Osmundastrum cinnamomeum*	S5	50.0%
MOSSES	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Squirrel-tail Moss	Leucodontaceae	*Leucodon sciuroides*	SU?	50.0%
Fountain Apple Moss	Bartramiaceae	*Philonotis fontana*	S4S5	50%
Northern Tree Moss	Climaciaceae	*Climacium dendroides*	S5	100.0%
Common Broom Moss	Dicranaceae	*Dicranum scoparium*	S5	100.0%
Stairstep Moss	Hylocomiaceae	*Hylocomium splendens*	S5	100.0%
Electrified Cat's-tail Moss	Hylocomiaceae	*Rhytidiadelphus triquetrus*	S5	100.0%
Red-stemmed Feather Moss	Hylocomiaceae	*Pleurozium schreberi*	S5	100.0%
Pellucid Plait Moss	*Hypnaceae*	*Hypnum imponens*	S5	50.0%
Dotted Leafy Moss	Mniaceae	*Rhizomnium punctatum*	S4?	50.0%
Common Flat-branch Moss	*Neckeraceae*	*Homalia trichomanoides*	SU	50.0%
Feathery Neckera Moss	*Neckeraceae*	*Neckera pennata*	S5	100.0%
Common Haircap Moss	Polytrichaceae	*Polytrichum commune*	S5	50.0%
Peatmoss	*Sphagnaceae*	*Sphagnum sp*	N/A	50.0%
Shaggy Peat Moss	Sphagnaceae	*Sphagnum squarrosum*	S5	100.0%
LIVERWORTS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Frullania Liverwort	Jubulaceae	*Frullania sp.*	SU	100.0%
Asa Gray's Scalewort	Jubulaceae	*Frullania asagrayana*	SU	50%
Three-lobed Whipwort	Lepidoziaceae	*Bazzania trilobata*	S5	100.0%
Lesser Featherwort	Plagiochilaceae	*Plagiochila porelloides*	SU	50.0%
Wall Scalewort	Porellaceae	*Porella platyphylla*	SU	50.0%

Associated Species: Open Riparian

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
	Ptilidiaceae	*Ptilidium pulcherrimum*	SU	50.0%
Flat-leaved Scalewort	Radulaceae	*Radula complanata*	SU	100.0%
LICHENS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Bottlebrush Shield Lichen	Parmeliaceae	*Parmelia squarrosa*	S5	50.0%
Dragon Lichen	Cladoniaceae	*Cladonia squamosa*	S4S5	50.0%
Cladonia spp.	Cladoniaceae	*Cladonia sp*	N/A	50.0%
Lungwort Lichen	Lobariaceae	*Lobaria pulmonaria*	S4S5	50.0%
Textured Lungwort Lichen	Lobariaceae	*Lobaria scrobiculata*	S4	100.0%
Smooth Lung Lichen	Lobariaceae	*Ricasolia quercizans*	S4S5	50.0%
Monk's Hood Lichen	Parmeliaceae	*Hypogymnia physodes*	S5	50.0%
Abrading Camouflage Lichen	Parmeliaceae	*Melanelixia subaurifera*	S4S5	50.0%
Varied Rag Lichen	Parmeliaceae	*Platismatia glauca*	S5	50.0%
Orange-cored Shadow Lichen	Physciaceae	*Phaeophyscia rubropulchra*	S4S5	50%
Mustard Lichen	Physciaceae	*Pyxine sorediata*	SU	100%
FUNGI	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
a fungus	Xylariaceae	*Kretzschmaria deusta*	SU	50%

SPECIES LIST

Habitat:	Open Marsh
# of Sites	4

BIODIVERSITY

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
CONIFEROUS TREES	FAMILY	SCIENTIFIC NAME	SRANK	
Balsam Fir	*Pinaceae*	*Abies balsamea*	S5	50.0%
Tamarack	*Pinaceae*	*Larix laricina*	S5	100.0%
Black Spruce	*Pinaceae*	*Picea mariana*	S5	50.0%
Eastern White Pine	*Pinaceae*	*Pinus strobus*	S3S4	50%
DECIDUOUS TREES	FAMILY	SCIENTIFIC NAME	SRANK	
Paper Birch	*Betulaceae*	*Betula papyrifera*	S5	75.0%
American Mountain Ash	*Rosaceae*	*Sorbus americana*	S5	50.0%
Red Maple	*Sapindaceae*	*Acer rubrum*	S5	100.0%
SHRUBS	FAMILY	SCIENTIFIC NAME	SRANK	
Skunk Currant	*Grossulariaceae*	*Ribes glandulosum*	S5	50.0%
Bristly Black Currant	*Grossulariaceae*	*Ribes lacustre*	S5	50.0%
Swamp Red Currant	*Grossulariaceae*	*Ribes triste*	S3S4	75.0%
Bristly Dewberry	*Rosaceae*	*Rubus hispidus*	S4	50.0%
Red Raspberry	*Rosaceae*	*Rubus idaeus*	S5	75.0%
Dwarf Red Raspberry	*Rosaceae*	*Rubus pubescens*	S5	50.0%
Canada Yew	*Taxaceae*	*Taxus canadensis*	S4	50.0%
Mountain Holly	*Aquifoliaceae*	*Ilex mucronata*	S5	50.0%
Speckled Alder	*Betulaceae*	*Alnus incana*	S5	75.0%
Bog Birch	*Betulaceae*	*Betula pumila*	S3	75.0%
Canada Fly Honeysuckle	*Caprifoliaceae*	*Lonicera canadensis*	S5	25.0%
Mountain Fly Honeysuckle	*Caprifoliaceae*	*Lonicera villosa*	S4	75.0%
Alternate-leaved Dogwood	*Cornaceae*	*Cornus alternifolia*	S4	25.0%
Red Osier Dogwood	*Cornaceae*	*Cornus sericea*	S5	75.0%
Sweet Gale	*Myricaceae*	*Myrica gale*	S5	25.0%
alder-leaved buckthorn	*Rhamnaceae*	*Endotropis alnifolia*	S3S4	75.0%
Serviceberry	*Rosaceae*	*Amelanchier sp*	N/A	25.0%
Shining Rose	*Rosaceae*	*Rosa nitida*	S4	75.0%
Willow	*Salicaceae*	*Salix spp.*	N/A	50.0%
Mountain Maple	*Sapindaceae*	*Acer spicatum*	S5	25.0%
Common Elderberry	*Viburnaceae*	*Sambucus canadensis*	S4S5	25.0%
Northern Wild Raisin	*Viburnaceae*	*Viburnum cassinoides*	S5	75.0%
Highbush Cranberry	*Viburnaceae*	*Viburnum opulus*	S3	25.0%
Sheep Laurel	*Ericaceae*	*Kalmia angustifolia*	S5	25.0%
Common Labrador Tea	*Ericaceae*	*Rhododendron groenlandicum*	S5	75.0%
Velvet-leaved Blueberry	*Ericaceae*	*Vaccinium myrtilloides*	S4S5	25.0%

Associated Species: Open Marsh

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
Turion Duckweed	*Araceae*	*Lemna turionifera*	S4S5	25.0%
Broad-leaved Cattail	*Typhaceae*	*Typha latifolia*	S5	75.0%
Trailing Arbutus	*Ericaceae*	*Epigaea repens*	S4	25.0%
Creeping Snowberry	*Ericaceae*	*Gaultheria hispidula*	S5	50.0%
Round-leaved Pyrola	*Ericaceae*	*Pyrola americana*	S4	25.0%
Small Purple Fringed Orchid	*Orchidaceae*	*Platanthera psycodes*	S4	75.0%
Canada Goldenrod	*Asteraceae*	*Solidago canadensis*	S5	25.0%
Rough-stemmed Goldenrod	*Asteraceae*	*Solidago rugosa*	S5	50.0%
Wild Sarsaparilla	*Araliaceae*	*Aralia nudicaulis*	S5	25.0%
Whorled Wood Aster	*Asteraceae*	*Oclemena acuminata*	S5	25.0%
Hairy Flat-top White Aster	*Asteraceae*	*Doellingeria umbellata*	S5	75.0%
Aster spp.	*Asteraceae*	*Symphyotrichum sp*	N/A	50.0%
Twinflower	*Caprifoliaceae*	*Linnaea borealis*	S5	25.0%
Bunchberry	*Cornaceae*	*Cornus canadensis*	S5	75.0%
Northern Starflower	*Primulaceae*	*Lysimachia borealis*	S5	25.0%
Goldthread	*Ranunculaceae*	*Coptis trifolia*	S5	25.0%
Hooked Agrimony	*Rosaceae*	*Agrimonia gryposepala*	S3	25.0%
Bulbous Water-hemlock	*Apiaceae*	*Cicuta bulbifera*	S4S5	50.0%
Common Water Parsnip	*Apiaceae*	*Sium suave*	S5	75.0%
Wild Calla	*Araceae*	*Calla palustris*	S4	50.0%
Three-leaved False Soloman's Seal	*Asparagaceae*	*Maianthemum trifolium*	S4	75.0%
Spotted Joe Pye Weed	*Asteraceae*	*Eutrochium maculatum*	S5	75.0%
Purple-stemmed Aster	*Asteraceae*	*Symphyotrichum puniceum*	S5	50.0%
Spotted Jewelweed	*Balsaminaceae*	*Impatiens capensis*	S5	75.0%
Small Forget-Me-Not	*Boraginaceae*	*Myosotis laxa*	S4	25.0%
Fraser's St. John's-wort	*Hypericaceae*	*Hypericum fraseri*	S5	25.0%
Northern Willowherb	*Onagraceae*	*Epilobium ciliatum*	S5	25.0%
Bog Willowherb	*Onagraceae*	*Epilobium leptophyllum*	S4S5	50.0%
Marsh Water-starwort	*Plantaginaceae*	*Callitriche palustris*	S4	50.0%
White Turtlehead	*Plantaginaceae*	*Chelone glabra*	S5	25.0%
American Speedwell	*Plantaginaceae*	*Veronica americana*	S4	25.0%
Greater Water Dock	*Polygonaceae*	*Rumex britannica*	S5	25.0%
Tall Meadow-Rue	*Ranunculaceae*	*Thalictrum pubescens*	S5	75.0%
Avens	*Rosaceae*	*Geum sp*	N/A	25.0%
Common Marsh Bedstraw	*Rubiaceae*	*Galium palustre*	S5	75.0%
American Golden Saxifrage	*Saxifragaceae*	*Chrysosplenium americanum*	S4	75.0%
Naked Bishop's-Cap	*Saxifragaceae*	*Mitella nuda*	S4	100.0%
Wild Strawberry	*Rosaceae*	*Fragaria virginiana*	S5	50.0%
FERNS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	

Associated Species: Open Marsh

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
Mountain Wood Fern	*Dryopteridaceae*	*Dryopteris campyloptera*	S4	25.0%
Crested Wood Fern	*Dryopteridaceae*	*Dryopteris cristata*	S5	50.0%
Christmas Fern	*Dryopteridaceae*	*Polystichum acrostichoides*	S2S3	25.0%
Sensitive Fern	*Onocleaceae*	*Onoclea sensibilis*	S5	50.0%
Cinnamon Fern	*Osmundaceae*	*Osmundastrum cinnamomeum*	S5	100.0%
Eastern Marsh Fern	*Thelypteridaceae*	*Thelypteris palustris*	S4S5	75.0%
HORSETAILS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Water Horsetail	*Equisetaceae*	*Equisetum fluviatile*	S4	50%
Woodland Horsetail	*Equisetaceae*	*Equisetum sylvaticum*	S5	25.0%
MOSSES	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Glow Moss	Aulacomniaceae	*Aulacomnium palustre*	S5	25.0%
Northern Tree Moss	Climaciaceae	*Climacium dendroides*	S5	25.0%
Common Broom Moss	Dicranaceae	*Dicranum scoparium*	S5	50.0%
Stairstep Moss	Hylocomiaceae	*Hylocomium splendens*	S5	25.0%
Electrified Cat's-tail Moss	Hylocomiaceae	*Rhytidiadelphus triquetrus*	S5	25.0%
Red-stemmed Feather Moss	Hylocomiaceae	*Pleurozium schreberi*	S5	25.0%
Dotted Leafy Moss	Mniaceae	*Rhizomnium punctatum*	S4?	25.0%
Crisped Pincushion Moss	Orthotrichaceae	*Ulota crispa*	S5	25.0%
Smoothcap Moss	Polytrichaceae	*Atrichum sp*	N/A	25.0%
Peatmoss	*Sphagnaceae*	*Sphagnum sp*	N/A	75.0%
Green Peat Moss	*Sphagnaceae*	*Sphagnum girgensohnii*	S5	25.0%
Shaggy Peat Moss	Sphagnaceae	*Sphagnum squarrosum*	S5	25.0%
Delicate Fern Moss	*Thuidiaceae*	*Thuidium delicatulum*	S4S5	25.0%
LIVERWORTS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Frullania Liverwort	Jubulaceae	*Frullania sp.*	SU	25.0%
Scalewort	Jubulaceae	*Frullania sp*	N/A	25.0%
Three-lobed Whipwort	Lepidoziaceae	*Bazzania trilobata*	S5	25.0%
Green-tongue Liverwort	Marchantiaceae	*Marchantia polymorpha*	SU	25%
Wall Scalewort	Porellaceae	*Porella platyphylla*	SU	25.0%
	Ptilidiaceae	*Ptilidium pulcherrimum*	SU	50.0%
Flat-leaved Scalewort	Radulaceae	*Radula complanata*	SU	50.0%
Woolly Liverwort	Trichocoleaceae	*Trichocolea tomentella*	SU	25.0%
LICHENS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
Buellia spp.	Physciaceae	*Buellia sp*	N/A	25.0%
Bottlebrush Shield Lichen	Parmeliaceae	*Parmelia squarrosa*	S5	75.0%
Reindeer Lichen	Cladoniaceae	*Cladonia arbuscula*	S5	25.0%
Cladonia spp.	Cladoniaceae	*Cladonia sp*	N/A	50.0%
Lungwort Lichen	Lobariaceae	*Lobaria pulmonaria*	S4S5	100.0%
Smooth Lung Lichen	Lobariaceae	*Ricasolia quercizans*	S4S5	25.0%
Bryoria Lichen	Parmeliaceae	*Bryoria sp*	N/A	50.0%

Associated Species: Open Marsh

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK	Frequency
Monk's Hood Lichen	Parmeliaceae	*Hypogymnia physodes*	S5	75.0%
Abrading Camouflage Lichen	Parmeliaceae	*Melanelixia subaurifera*	S4S5	50.0%
Varied Rag Lichen	Parmeliaceae	*Platismatia glauca*	S5	50.0%
Variable Wrinkle Lichen	Parmeliaceae	*Tuckermannopsis orbata*	S4S5	25%
Usnea	Parmeliaceae	*Usnea sp*	N/A	75.0%
BIRDS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**	
American Woodcock	Scolopacidae	*Scolopax minor*	S5B	25.0%

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Appendix I: Species List - All Black Ash Sites

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK
CONIFEROUS TREES	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**
Eastern White Cedar	*Cupressaceae*	*Thuja occidentalis*	S3S4
Balsam Fir	*Pinaceae*	*Abies balsamea*	S5
Tamarack	*Pinaceae*	*Larix laricina*	S5
White Spruce	*Pinaceae*	*Picea glauca*	S5
Black Spruce	*Pinaceae*	*Picea mariana*	S5
Red Spruce	*Pinaceae*	*Picea rubens*	S5
Eastern White Pine	*Pinaceae*	*Pinus strobus*	S3S4
Eastern Hemlock	*Pinaceae*	*Tsuga canadensis*	S3
DECIDUOUS TREES	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**
Yellow Birch	*Betulaceae*	*Betula alleghaniensis*	S5
Heart-leaved Birch	*Betulaceae*	*Betula cordifolia*	S3S4
Paper Birch	*Betulaceae*	*Betula papyrifera*	S5
Gray Birch	*Betulaceae*	*Betula populifolia*	S5
American Beech	*Fagaceae*	*Fagus grandifolia*	S3S4
Northern Red Oak	*Fagaceae*	*Quercus rubra*	S3S4
White Ash	*Oleaceae*	*Fraxinus americana*	S2S3
Black Ash	*Oleaceae*	*Fraxinus nigra*	S2
Pin Cherry	*Rosaceae*	*Prunus pensylvanica*	S5
American Mountain Ash	*Rosaceae*	*Sorbus americana*	S5
Large-toothed Aspen	*Salicaceae*	*Populus grandidentata*	S4S5
Trembling Aspen	*Salicaceae*	*Populus tremuloides*	S5
Striped Maple	*Sapindaceae*	*Acer pensylvanicum*	S5
Red Maple	*Sapindaceae*	*Acer rubrum*	S5
Sugar Maple	*Sapindaceae*	*Acer saccharum*	S4
White Elm	*Ulmaceae*	*Ulmus americana*	S3
SHRUBS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**
Western Poison Ivy	*Anacardiaceae*	*Toxicodendron radicans var. rydbergii*	S4
Spreading Dogbane	*Apocynaceae*	*Apocynum androsaemifolium*	S4
Mountain Holly	*Aquifoliaceae*	*Ilex mucronata*	S5
Common Winterberry	*Aquifoliaceae*	*Ilex verticillata*	S5
Green Alder	*Betulaceae*	*Alnus alnobetula*	S4S5
Speckled Alder	*Betulaceae*	*Alnus incana*	S5
Bog Birch	*Betulaceae*	*Betula pumila*	S3
Beaked Hazel	*Betulaceae*	*Corylus cornuta*	S5
Northern Bush Honeysuckle	*Caprifoliaceae*	*Diervilla lonicera*	S4
Canada Fly Honeysuckle	*Caprifoliaceae*	*Lonicera canadensis*	S5
Mountain Fly Honeysuckle	*Caprifoliaceae*	*Lonicera villosa*	S4
Alternate-leaved Dogwood	*Cornaceae*	*Cornus alternifolia*	S4
Red Osier Dogwood	*Cornaceae*	*Cornus sericea*	S5

Appendix I: Species List - All Black Ash Sites

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK
Leatherleaf	*Ericaceae*	*Chamaedaphne calyculata*	S4
Black Huckleberry	*Ericaceae*	*Gaylussacia baccata*	S4S5
Sheep Laurel	*Ericaceae*	*Kalmia angustifolia*	S5
Rhodora	*Ericaceae*	*Rhododendron canadense*	S5
Common Labrador Tea	*Ericaceae*	*Rhododendron groenlandicum*	S5
Late Lowbush Blueberry	*Ericaceae*	*Vaccinium angustifolium*	S5
Velvet-leaved Blueberry	*Ericaceae*	*Vaccinium myrtilloides*	S4S5
Skunk Currant	*Grossulariaceae*	*Ribes glandulosum*	S5
Smooth Gooseberry	*Grossulariaceae*	*Ribes hirtellum*	S5
Bristly Black Currant	*Grossulariaceae*	*Ribes lacustre*	S5
Swamp Red Currant	*Grossulariaceae*	*Ribes triste*	S3S4
American Witch-Hazel	*Hamamelidaceae*	*Hamamelis virginiana*	S1
Sweet-fern	*Myricaceae*	*Comptonia peregrina*	S4
Northern Bayberry	*Myricaceae*	*Morella pensylvanica*	S5
Sweet Gale	*Myricaceae*	*Myrica gale*	S5
Virginia Clematis	*Ranunculaceae*	*Clematis virginiana*	S4
alder-leaved buckthorn	*Rhamnaceae*	*Endotropis alnifolia*	S3S4
Serviceberry	*Rosaceae*	*Amelanchier sp*	N/A
Black Chokeberry	*Rosaceae*	*Aronia melanocarpa*	S4S5
Aronia sp	*Rosaceae*	*Aronia sp*	N/A
Chokecherry	*Rosaceae*	*Prunus virginiana*	S5
Shining Rose	*Rosaceae*	*Rosa nitida*	S4
Virginia Rose	*Rosaceae*	*Rosa virginiana*	S5
Alleghaney Blackberry	*Rosaceae*	*Rubus allegheniensis*	S4S5
Smooth Blackberry	*Rosaceae*	*Rubus canadensis*	S5
Bristly Dewberry	*Rosaceae*	*Rubus hispidus*	S4
Red Raspberry	*Rosaceae*	*Rubus idaeus*	S5
Dwarf Red Raspberry	*Rosaceae*	*Rubus pubescens*	S5
White Meadowsweet	*Rosaceae*	*Spiraea alba*	S5
Steeplebush	*Rosaceae*	*Spiraea tomentosa*	S4
Willow	*Salicaceae*	*Salix spp.*	N/A
Mountain Maple	*Sapindaceae*	*Acer spicatum*	S5
Canada Yew	*Taxaceae*	*Taxus canadensis*	S4
Common Elderberry	*Viburnaceae*	*Sambucus canadensis*	S4S5
Red Elderberry	*Viburnaceae*	*Sambucus racemosa*	S5
Northern Wild Raisin	*Viburnaceae*	*Viburnum cassinoides*	S5
Hobblebush	*Viburnaceae*	*Viburnum lantanoides*	S1S2
Highbush Cranberry	*Viburnaceae*	*Viburnum opulus*	S3
NON-NATIVE TREES	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**
English Oak	*Fagaceae*	*Quercus robur*	SNA
European Mountain Ash	*Rosaceae*	*Sorbus aucuparia*	SNA
NON-NATIVE SHRUBS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**
Glossy Buckthorn	*Rhamnaceae*	*Frangula alnus*	SNA
WILDFLOWERS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**
Broad-leaved Arrowhead	*Alismataceae*	*Sagittaria latifolia*	S4
White Sea-blite	*Amaranthaceae*	*Suaeda maritima*	S4S5
Purple-stemmed Angelica	*Apiaceae*	*Angelica atropurpurea*	S3

Appendix I: Species List - All Black Ash Sites

COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK
Woodland Angelica	*Apiaceae*	*Angelica sylvestris*	SNA
Bulbous Water-hemlock	*Apiaceae*	*Cicuta bulbifera*	S4S5
Queen Anne's Lace	*Apiaceae*	*Daucus carota*	SNA
Scotch Lovage	*Apiaceae*	*Ligusticum scoticum*	S4
Maryland Sanicle	*Apiaceae*	*Sanicula marilandica*	S3S4
Common Water Parsnip	*Apiaceae*	*Sium suave*	S5
Swamp Milkweed	*Apocynaceae*	*Asclepias incarnata*	S2
Jack-in-the-pulpit	*Araceae*	*Arisaema triphyllum*	S4
Wild Calla	*Araceae*	*Calla palustris*	S4
Star Duckweed	*Araceae*	*Lemna trisulca*	S3S4
Turion Duckweed	*Araceae*	*Lemna turionifera*	S4S5
Wild Sarsaparilla	*Araliaceae*	*Aralia nudicaulis*	S5
Wild Lily-of-The-Valley	*Asparagaceae*	*Maianthemum canadense*	S5
Large False Solomon's Seal	*Asparagaceae*	*Maianthemum racemosum*	S4
Three-leaved False Soloman's Seal	*Asparagaceae*	*Maianthemum trifolium*	S4
Common Burdock	*Asteraceae*	*Arctium minus*	SNA
Beach Wormwood	*Asteraceae*	*Artemisia stelleriana*	SNA
Purple-stemmed Beggarticks	*Asteraceae*	*Bidens connata*	S4
Hairy Flat-top White Aster	*Asteraceae*	*Doellingeria umbellata*	S5
Eastern Burnweed	*Asteraceae*	*Erechtites hieraciifolius*	S4
Grass-leaved Goldenrod	*Asteraceae*	*Euthamia graminifolia*	S5
Spotted Joe Pye Weed	*Asteraceae*	*Eutrochium maculatum*	S5
Rough Hawkweed	*Asteraceae*	*Hieracium scabrum*	S4
Tansy Ragwort	*Asteraceae*	*Jacobaea vulgaris*	SNA
Tall Blue Lettuce	*Asteraceae*	*Lactuca biennis*	S5
Tall Rattlesnakeroot	*Asteraceae*	*Nabalus altissimus*	S4
Three-leaved Rattlesnakeroot	*Asteraceae*	*Nabalus trifoliolatus*	S5
Whorled Wood Aster	*Asteraceae*	*Oclemena acuminata*	S5
White Goldenrod	*Asteraceae*	*Solidago bicolor*	S4
Canada Goldenrod	*Asteraceae*	*Solidago canadensis*	S5
Zigzag Goldenrod	*Asteraceae*	*Solidago flexicaulis*	S3
Downy Goldenrod	*Asteraceae*	*Solidago puberula*	S4S5
Rough-stemmed Goldenrod	*Asteraceae*	*Solidago rugosa*	S5
Northern Bog Goldenrod	*Asteraceae*	*Solidago uliginosa*	S4
Boreal Aster	*Asteraceae*	*Symphyotrichum boreale*	S3
Heart-leaved Aster	*Asteraceae*	*Symphyotrichum cordifolium*	S4
Calico Aster	*Asteraceae*	*Symphyotrichum lateriflorum*	S5
New York Aster	*Asteraceae*	*Symphyotrichum novi-belgii*	S5
Purple-stemmed Aster	*Asteraceae*	*Symphyotrichum puniceum*	S5
Aster spp.	*Asteraceae*	*Symphyotrichum sp*	N/A
Common Dandelion	*Asteraceae*	*Taraxacum officinale*	SNA
Coltsfoot	*Asteraceae*	*Tussilago farfara*	SNA
Spotted Jewelweed	*Balsaminaceae*	*Impatiens capensis*	S5
Small Forget-Me-Not	*Boraginaceae*	*Myosotis laxa*	S4
Pennsylvania Bittercress	*Brassicaceae*	*Cardamine pensylvanica*	S4S5
Twinflower	*Caprifoliaceae*	*Linnaea borealis*	S5
Blunt-leaved Sandwort	*Caryophyllaceae*	*Moehringia lateriflora*	S5

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COMMON NAME	FAMILY	SCIENTIFIC NAME	SRANK
Dodder	Convolvulaceae	*Cuscuta sp.*	S?
Bunchberry	*Cornaceae*	*Cornus canadensis*	S5
Round-leaved Sundew	*Droseraceae*	*Drosera rotundifolia*	S4
Trailing Arbutus	*Ericaceae*	*Epigaea repens*	S4
Creeping Snowberry	*Ericaceae*	*Gaultheria hispidula*	S5
Eastern Teaberry	*Ericaceae*	*Gaultheria procumbens*	S4S5
Pinesap	*Ericaceae*	*Hypopitys monotropa*	S3
One-flowered Wintergreen	*Ericaceae*	*Moneses uniflora*	S3
Convulsion-Root	*Ericaceae*	*Monotropa uniflora*	S5
One-sided Wintergreen	*Ericaceae*	*Orthilia secunda*	S4S5
Round-leaved Pyrola	*Ericaceae*	*Pyrola americana*	S4
Pink Pyrola	*Ericaceae*	*Pyrola asarifolia*	S2S3
Shinleaf	*Ericaceae*	*Pyrola elliptica*	S5
Large Cranberry	*Ericaceae*	*Vaccinium macrocarpon*	S4S5
Small Cranberry	*Ericaceae*	*Vaccinium oxycoccos*	S4
Mountain Cranberry	*Ericaceae*	*Vaccinium vitis-idaea*	S3
Herb Robert	*Geraniaceae*	*Geranium robertianum*	S4
Siberian Water Milfoil	*Haloragaceae*	*Myriophyllum sibiricum*	S4
Fraser's St. John's-wort	*Hypericaceae*	*Hypericum fraseri*	S5
Harlequin Blue Flag	*Iridaceae*	*Iris versicolor*	S5
Common Hemp-nettle	*Lamiaceae*	*Galeopsis tetrahit*	SNA
American Water Horehound	*Lamiaceae*	*Lycopus americanus*	S4S5
Northern Water Horehound	*Lamiaceae*	*Lycopus uniflorus*	S5
Canadian Mint	*Lamiaceae*	*Mentha canadensis*	S4S5
Common Self-heal	*Lamiaceae*	*Prunella vulgaris*	S5
Marsh Skullcap	*Lamiaceae*	*Scutellaria galericulata*	S4S5
Mad-dog Skullcap	*Lamiaceae*	*Scutellaria lateriflora*	S5
Canada Germander	*Lamiaceae*	*Teucrium canadense*	S3S4
Yellow Bluebead Lily	*Liliaceae*	*Clintonia borealis*	S5
Cucumber Root	*Liliaceae*	*Medeola virginiana*	S3S4
Rose Twisted-stalk	*Liliaceae*	*Streptopus lanceolatus*	S4
Purple Loosestrife	*Lythraceae*	*Lythrum salicaria*	SNA
Painted Trillium	*Melanthiaceae*	*Trillidium undulatum*	S5
Nodding Trillium	*Melanthiaceae*	*Trillium cernuum*	S4
Bog Buckbean	*Menyanthaceae*	*Menyanthes trifoliata*	S4
Fireweed	*Onagraceae*	*Chamaenerion angustifolium*	S5
Small Enchanter's Nightshade	*Onagraceae*	*Circaea alpina*	S5
Broad-leaved Enchanter's Nightshade	*Onagraceae*	*Circaea canadensis*	S2S3
Northern Willowherb	*Onagraceae*	*Epilobium ciliatum*	S5
Bog Willowherb	*Onagraceae*	*Epilobium leptophyllum*	S4S5
Willherb spp.	*Onagraceae*	*Epilobium sp*	N/A
Early Coralroot	*Orchidaceae*	*Corallorhiza trifida*	S2S3
Pink Lady's-Slipper	*Orchidaceae*	*Cypripedium acaule*	S5
Yellow Lady's-slipper	*Orchidaceae*	*Cypripedium parviflorum*	S2S3
Showy Lady's-Slipper	*Orchidaceae*	*Cypripedium reginae*	S2S3
Helleborine	*Orchidaceae*	*Epipactis helleborine*	SNA
White Fringed Orchid	*Orchidaceae*	*Platanthera blephariglottis*	S3S4

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Club Spur Orchid	*Orchidaceae*	*Platanthera clavellata*	S3S4
White Bog Orchid	*Orchidaceae*	*Platanthera dilatata*	S3
Fragrant Green Orchid	*Orchidaceae*	*Platanthera huronensis*	S1?
Small Purple Fringed Orchid	*Orchidaceae*	*Platanthera psycodes*	S4
Common Eyebright	*Orobanchaceae*	*Euphrasia nemorosa*	SNA
Common Wood Sorrel	*Oxalidaceae*	*Oxalis montana*	S4
European Wood Sorrel	*Oxalidaceae*	*Oxalis stricta*	S5
Square-stemmed Monkeyflower	*Phrymaceae*	*Mimulus ringens*	S3S4
Marsh Water-starwort	*Plantaginaceae*	*Callitriche palustris*	S4
White Turtlehead	*Plantaginaceae*	*Chelone glabra*	S5
American Speedwell	*Plantaginaceae*	*Veronica americana*	S4
Common Speedwell	*Plantaginaceae*	*Veronica officinalis*	SNA
Prairie Cordgrass	*Poaceae*	*Sporobolus michauxianus*	S5
Fringed Black Bindweed	*Polygonaceae*	*Fallopia cilinodis*	S4
Halberd-leaved Tearthumb	*Polygonaceae*	*Persicaria arifolia*	S3
False Waterpepper	*Polygonaceae*	*Persicaria hydropiperoides*	SNA
Pale Smartweed	*Polygonaceae*	*Persicaria lapathifolia*	S4S5
Arrow-leaved Smartweed	*Polygonaceae*	*Persicaria sagittata*	S5
Greater Water Dock	*Polygonaceae*	*Rumex britannica*	S5
Curled Dock	*Polygonaceae*	*Rumex crispus*	SNA
Tierra del Fuego Dock	*Polygonaceae*	*Rumex fueginus*	S4
Floating-leaved Pondweed	*Potamogetonaceae*	*Potamogeton natans*	S4
Clasping-leaved Pondweed	*Potamogetonaceae*	*Potamogeton perfoliatus*	S4
Northern Starflower	*Primulaceae*	*Lysimachia borealis*	S5
Sea Milkwort	*Primulaceae*	*Lysimachia maritima*	S4S5
Swamp Yellow Loosestrife	*Primulaceae*	*Lysimachia terrestris*	S4S5
Red Baneberry	*Ranunculaceae*	*Actaea rubra*	S4
Yellow Marsh Marigold	*Ranunculaceae*	*Caltha palustris*	S4S5
Goldthread	*Ranunculaceae*	*Coptis trifolia*	S5
Kidney-Leaved Buttercup	*Ranunculaceae*	*Ranunculus abortivus*	S4
Common Buttercup	*Ranunculaceae*	*Ranunculus acris*	SNA
Gmelin's Water Buttercup	*Ranunculaceae*	*Ranunculus gmelinii*	S4
Hooked Buttercup	*Ranunculaceae*	*Ranunculus recurvatus*	S2
Creeping Buttercup	*Ranunculaceae*	*Ranunculus repens*	SNA
White Water Buttercup	*Ranunculaceae*	*Ranunculus trichophyllus*	S4
Tall Meadow-Rue	*Ranunculaceae*	*Thalictrum pubescens*	S5
Hooked Agrimony	*Rosaceae*	*Agrimonia gryposepala*	S3
Woodland Agrimony	*Rosaceae*	*Agrimonia striata*	S4
Marsh Cinquefoil	*Rosaceae*	*Comarum palustre*	S4
Wild Strawberry	*Rosaceae*	*Fragaria virginiana*	S5
Rough Avens	*Rosaceae*	*Geum laciniatum*	S4
Large-Leaved Avens	*Rosaceae*	*Geum macrophyllum*	S3S4
Water Avens	*Rosaceae*	*Geum rivale*	S4
Avens	*Rosaceae*	*Geum sp*	N/A
Rough Cinquefoil	*Rosaceae*	*Potentilla norvegica*	S4S5
Rough Bedstraw	*Rubiaceae*	*Galium asprellum*	S4S5
Common Marsh Bedstraw	*Rubiaceae*	*Galium palustre*	S5

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Dyer's Bedstraw	*Rubiaceae*	*Galium tinctorium*	S4
Three-petaled Bedstraw	*Rubiaceae*	*Galium trifidum*	S4S5
Three-flowered Bedstraw	*Rubiaceae*	*Galium triflorum*	S5
Partridgeberry	*Rubiaceae*	*Mitchella repens*	S2S3
American Golden Saxifrage	*Saxifragaceae*	*Chrysosplenium americanum*	S4
Naked Bishop's-Cap	*Saxifragaceae*	*Mitella nuda*	S4
Bittersweet Nightshade	*Solanaceae*	*Solanum dulcamara*	SNA
Green-fruited Burreed	*Typhaceae*	*Sparganium emersum*	S4S5
Small Burreed	*Typhaceae*	*Sparganium natans*	S3
Broad-leaved Cattail	*Typhaceae*	*Typha latifolia*	S5
Dwarf Clearweed	*Urticaceae*	*Pilea pumila*	S4
Stinging Nettle	*Urticaceae*	*Urtica dioica ssp. gracilis*	S4
Marsh Blue Violet	*Violaceae*	*Viola cucullata*	S5
Small White Violet	*Violaceae*	*Viola macloskeyi*	S5
Virginia Creeper	Vitaceae	*Parthenocissus quinquefolia*	SNA
FERNS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**
Common Lady Fern	*Athyriaceae*	*Athyrium filix-femina*	S5
Common Oak Fern	*Cystopteridaceae*	*Gymnocarpium dryopteris*	S5
Eastern Hay-Scented Fern	*Dennstaedtiaceae*	*Dennstaedtia punctilobula*	S5
Bracken Fern	*Dennstaedtiaceae*	*Pteridium aquilinum*	S5
Mountain Wood Fern	*Dryopteridaceae*	*Dryopteris campyloptera*	S4
Spinulose Wood Fern	*Dryopteridaceae*	*Dryopteris carthusiana*	S4S5
Crested Wood Fern	*Dryopteridaceae*	*Dryopteris cristata*	S5
Evergreen Wood Fern	*Dryopteridaceae*	*Dryopteris intermedia*	S5
Christmas Fern	*Dryopteridaceae*	*Polystichum acrostichoides*	S2S3
Ostrich Fern	*Onocleaceae*	*Matteuccia struthiopteris*	S4
Sensitive Fern	*Onocleaceae*	*Onoclea sensibilis*	S5
Interrupted Fern	*Osmundaceae*	*Claytosmunda claytoniana*	S5
Royal Fern	*Osmundaceae*	*Osmunda regalis*	S4
Royal Fern	*Osmundaceae*	*Osmunda regalis var. spectabilis*	S4
Cinnamon Fern	*Osmundaceae*	*Osmundastrum cinnamomeum*	S5
New York Fern	*Thelypteridaceae*	*Parathelypteris noveboracensis*	S5
Northern Beech Fern	*Thelypteridaceae*	*Phegopteris connectilis*	S5
Eastern Marsh Fern	*Thelypteridaceae*	*Thelypteris palustris*	S4S5
CLUBMOSSES	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**
Round-branched Tree-clubmoss	*Lycopodiaceae*	*Dendrolycopodium dendroideum*	S5
Northern Ground-cedar	*Lycopodiaceae*	*Diphasiastrum complanatum*	S3
Shining Firmoss	*Lycopodiaceae*	*Huperzia lucidula*	S4
Northern Bog Clubmoss	*Lycopodiaceae*	*Lycopodiella inundata*	S3
HORSETAILS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**
Water Horsetail	*Equisetaceae*	*Equisetum fluviatile*	S4
Woodland Horsetail	*Equisetaceae*	*Equisetum sylvaticum*	S5
MOSSES	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**
Glow Moss	Aulacomniaceae	*Aulacomnium palustre*	S5
Fountain Apple Moss	Bartramiaceae	*Philonotis fontana*	S4S5
Silvery Bryum Moss	Bryaceae	*Bryum argenteum*	S4S5
Northern Tree Moss	Climaciaceae	*Climacium dendroides*	S5

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Mountain Broom Moss	Dicranaceae	*Dicranum montanum*	S5
Wavy-leaved Broom Moss	Dicranaceae	*Dicranum polysetum*	S5
Common Broom Moss	Dicranaceae	*Dicranum scoparium*	S5
Green Broom Moss	Dicranaceae	*Dicranum viride*	S4?
Stairstep Moss	Hylocomiaceae	*Hylocomium splendens*	S5
Electrified Cat's-tail Moss	Hylocomiaceae	*Rhytidiadelphus triquetrus*	S5
Red-stemmed Feather Moss	Hylocomiaceae	*Pleurozium schreberi*	S5
Beautiful Branch Moss	Hypnaceae	*Callicladium haldanianum*	S5
Pellucid Plait Moss	*Hypnaceae*	*Hypnum imponens*	S5
Knight's Plume Moss	*Hypnaceae*	*Ptilium crista-castrensis*	S5
White Pincushion Moss	Leucobryaceae	*Leucobryum glaucum*	SU
Squirrel-tail Moss	Leucodontaceae	*Leucodon sciuroides*	SU?
Swan's-neck Leafy Moss	Mniaceae	*Mnium hornum*	S5
Woodsy Leafy Moss	Mniaceae	*Plagiomnium cuspidatum*	S4S5
Appalachian Leafy Moss	Mniaceae	*Rhizomnium appalachianum*	S4S5
Dotted Leafy Moss	Mniaceae	*Rhizomnium punctatum*	S4?
Common Flat-branch Moss	*Neckeraceae*	*Homalia trichomanoides*	SU
Feathery Neckera Moss	*Neckeraceae*	*Neckera pennata*	S5
Darkgreen Bristle Moss	Orthotrichaceae	*Orthotrichum sordidum*	S5
Crisped Pincushion Moss	Orthotrichaceae	*Ulota crispa*	S5
Smoothcap Moss	Polytrichaceae	*Atrichum sp*	N/A
Common Smoothcap Moss	Polytrichaceae	*Atrichum undulatum*	S4S5
Common Haircap Moss	Polytrichaceae	*Polytrichum commune*	S5
Juniper Haircap Moss	Polytrichaceae	*Polytrichum juniperinum*	S4S5
Compact Peat Moss	*Sphagnaceae*	*Sphagnum compactum*	S3?
Green Peat Moss	*Sphagnaceae*	*Sphagnum girgensohnii*	S5
Peatmoss	*Sphagnaceae*	*Sphagnum sp*	N/A
Shaggy Peat Moss	Sphagnaceae	*Sphagnum squarrosum*	S5
Delicate Fern Moss	*Thuidiaceae*	*Thuidium delicatulum*	S4S5
LIVERWORTS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**
Wood Rustwort	Cephaloziaceae	*Nowellia curvifolia*	SU
Snake Liverwort	Conocephalaceae	*Conocephalum salebrosum*	SU
Asa Gray's Scalewort	Jubulaceae	*Frullania asagrayana*	SU
Scalewort	Jubulaceae	*Frullania sp*	N/A
Frullania Liverwort	Jubulaceae	*Frullania sp.*	SU
Three-lobed Whipwort	Lepidoziaceae	*Bazzania trilobata*	S5
Variable-Leaved Crestwort	Lophocoleaceae	*Lophocolea heterophylla*	SU
Green-tongue Liverwort	Marchantiaceae	*Marchantia polymorpha*	SU
Common Pellia	Pelliaceae	*Pellia epiphylla*	SU
Lesser Featherwort	Plagiochilaceae	*Plagiochila porelloides*	SU
Wall Scalewort	Porellaceae	*Porella platyphylla*	SU
	Ptilidiaceae	*Ptilidium pulcherrimum*	SU
Flat-leaved Scalewort	Radulaceae	*Radula complanata*	SU
Woolly Liverwort	Trichocoleaceae	*Trichocolea tomentella*	SU
LICHENS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**
Pink Earth Lichen	Baeomycetaceae	*Dibaeis baeomyces*	S4S5
Reindeer Lichen	Cladoniaceae	*Cladonia arbuscula*	S5

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Powdered Funnel Lichen	Cladoniaceae	*Cladonia cenotea*	S4S5
Giant Cladonia Lichen	Cladoniaceae	*Cladonia maxima*	SU
Gray Reindeer Lichen	Cladoniaceae	*Cladonia rangiferina*	S5
Cladonia spp.	Cladoniaceae	*Cladonia sp*	N/A
Dragon Lichen	Cladoniaceae	*Cladonia squamosa*	S4S5
Blue Jellyskin Lichen	Collemataceae	*Leptogium cyanescens*	S5
a Lichen	Graphidaceae	*Graphis scripta*	S5
Lecanora spp.	Lecanoraceae	*Lecanora spp.*	N/A
Lungwort Lichen	Lobariaceae	*Lobaria pulmonaria*	S4S5
Textured Lungwort Lichen	Lobariaceae	*Lobaria scrobiculata*	S4
Yellow Specklebelly Lichen	Lobariaceae	*Pseudocyphellaria holarctica*	S2S3
Smooth Lung Lichen	Lobariaceae	*Ricasolia quercizans*	S4S5
Mealy-rimmed Shingle Lichen	Pannariaceae	*Pannaria conoplea*	S1S2
Brown-eyed Shingle Lichen	Pannariaceae	*Pannaria rubiginosa*	S1
Bryoria Lichen	Parmeliaceae	*Bryoria sp*	N/A
Boreal Oakmoss Lichen	Parmeliaceae	*Evernia mesomorpha*	S5
Monk's Hood Lichen	Parmeliaceae	*Hypogymnia physodes*	S5
Powder-headed Tube Lichen	Parmeliaceae	*Hypogymnia tubulosa*	S4S5
Abrading Camouflage Lichen	Parmeliaceae	*Melanelixia subaurifera*	S4S5
Bottlebrush Shield Lichen	Parmeliaceae	*Parmelia squarrosa*	S5
Hammered Shield Lichen	Parmeliaceae	*Parmelia sulcata*	S5
Varied Rag Lichen	Parmeliaceae	*Platismatia glauca*	S5
Crumpled Rag Lichen	Parmeliaceae	*Platismatia tuckermanii*	S3S4
Variable Wrinkle Lichen	Parmeliaceae	*Tuckermannopsis orbata*	S4S5
Usnea	Parmeliaceae	*Usnea sp*	N/A
Bushy Beard Lichen	Parmeliaceae	*Usnea strigosa*	S4S5
Buellia spp.	Physciaceae	*Buellia sp*	N/A
Orange-cored Shadow Lichen	Physciaceae	*Phaeophyscia rubropulchra*	S4S5
Mustard Lichen	Physciaceae	*Pyxine sorediata*	SU
Maritime Sunburst Lichen		*Xanthoria parietina*	S4S5
FUNGI	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**
Golden Spindle Fungi	Clavariaceae	*Clavulinopsis fusiformis*	SU?
a fungus	Xylariaceae	*Kretzschmaria deusta*	SU
AMPHIBIANS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**
Green Frog	Ranidae	*Lithobates clamitans*	S4S5
Wood Frog	Ranidae	*Lithobates sylvaticus*	S5
BIRDS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**
Northern Goshawk	Accipitridae	*Accipiter gentilis*	S4
American Black Duck	Anatidae	*Anas rubripes*	S5B,S4N
Great Blue Heron	Ardeidae	*Ardea herodias*	S4B
Ruffed Grouse	Phasianidae	*Bonasa umbellus*	S5
Golden-crowned Kinglet	Regulidae	*Regulus satrapa*	S5
American Woodcock	Scolopacidae	*Scolopax minor*	S5B
MAMMALS	**FAMILY**	**SCIENTIFIC NAME**	**SRANK**
North American Beaver	Castoridae	*Castor canadensis*	S5
Snowshoe Hare	Leporidae	*Lepus americanus*	S5